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GENERAL INDEX

...TO...

RED CROSS NOTES

SERIES I and II

...For the Years...

1897-1898 and 1899-1900

◉ ◉ ◉

SUBJECTS AND AUTHORS

◉ ◉ ◉

...Published by...

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	Vol.	No.	Pg.
Abberger (B. S.) Neatest and best. (Red Cross Notes)...	II.	3	19
Abscesses and cysts.....	II.	1	18
Absorbent cotton.....	II.	8	10
—(A molecule of).....	II.	10	4
—Cheaper than ever.....	I.	8	—
—(Commercial). *See* Johnson (R. W.)			
—(How to examine).....	II.	2	20
—In American market.....	II.	8	17
—(Johnson's)	I.	12	7
—"	II.	2	20
—Notes	I.	11	20
—(Originality	I.	8	—
Absorbent power.....	I.	4	—
Acid-Alkali—Neutral	II.	1	5
Acute gastro-enteritis of children,	II.	1	19
Adams (F.) Excellence appreciated	II.	2	23
Adhesive plaster (A new).....	II.	9	17
—(Surgical). *See* Daly (P. J.)			
—That sticks. *See* Barnes (W. M.)			
—Plasters for stitch in the side	II.	3	17
After-treatment of appendix cases,	II.	1	4
Ambulance ship (The first).....	I.	12	10
American made plasters are the best in the world.....	II.	5	23
	II.	7	13
Analysis of cotton fibre (raw)..	II.	8	2
Analysts' report on plasters without belladonna or atropine..	II.	5	7
Ancient (An) figure—Mandragora Morion.....	II.	2	21
Antisepsis (Relative value of) and improved technique in operative gynæcology.....	II.	12	23
Antiseptic baby powder—good for twins. *See* Heebner (T. F.)			
—Dressings	II.	3	8
—Gauze. *See* Dry Antiseptic Gauze.			
—Soaps	I.	11	23
—Surgery (Recent advances in	I.	8	—
Antiseptics. *See* Mercuride leaf.			
—(Newer)	I.	7	—
—(The newer surgical).....	I.	4	—
Apothecary (The) at prayer....	II.	9	24
Appendicitis (Operative) in the country	II.	12	8
Appendix cases (After-treatment of	II.	1	4
Applied bacteriology.....	I.	11	20
	II.	11	10
Appreciative pupils of Red Cross Notes	II.	5	18
Armamentarium (Aseptic).....	I.	2	—
Army dressings. *See* Palmer (C. N.)			
Array (An) of names that tell a story.....	II.	1	14
Asepsis. *See* Breingan (A. S.)			
—and Antisepsis. Bibliography)	I.	3	—
—(Biblography). *See* New things in.			
—in the Spanish war. *See* Jones (H. P.)			
—Secundum Artem.....	I.	1	—
	I.	4	—
	I.	7	—
—(Letter from Walter S. Briscoe regarding).....	I.	2	—
—(Sir Hubert's praise).....	I.	7	—
—Words of).....	I.	12	8
Aseptic (An) dictionary.....	I.	12	8
—Armamentarium	I.	2	—
—Bibliography	II.	5	15
—Catgut	I.	9	—
—Dressings. *See* Carson (J. O.); Jones (A. D.)			
—A great comfort. *See* Gebhard (F. H.)			
—(Johnson & Johnson's. *See* Carter (R. W.)			
—(The making of).....	II.	12	7
Aseptic iodoform gauze (Johnson & Johnson's). *See* Murvey (U. G.)			
—Preparations (Johnson's). *See* Neely (J. W.)			
—Surgery. *See* Seventy-eight successful operations for appendicitis.			
—Towel. *See* Briggs (C. S.)			
—Toweling. *See* Justice (J. D.)			
—Towels	II.	3	16
—*See* Owen (A. M.)			
—Treatment of wounds in ophthalmic surgery.....	II.	5	14
Athletic supporters (Red Cross).	I.	12	20
Atonic dyspepsia.....	II.	1	20
Atropia belladonna.....	II.	10	8
Atropine (a new series of reactions for). *See* Dohme (A. R. L.)			
Ausflug (Der) des New Yorker deutschen Apotheker Vereins	II.	6	2
Bacilli illustrated by colored plates	II.	11	18
Bacteria. *See* Study (A) of germs.			
—(Röntgen rays on).....	I.	12	22
Bacteriological (A) tragedy.....	II.	7	14
—Tests	I.	11	18
	II.	11	12
Bacteriology. *See* Study (A) of germs.			
—Applied	I.	11	20
Bagby (B. M.) Admirable.....	I.	11	8
Bailey (M. F.) One hundred operations—Excellent results..	II.	4	21
Bale (A) of cotton.....	II.	10	2
Ballard (W. D.) Good work....	II.	4	23
Bandages (Suspensory).....	I.	2	—
Barnes (W. M.) Adhesive plaster that sticks.....	II.	11	23
Bauer (C.) Emplast. belladonna,	II.	4	18
Baxter (J.) Headquarters for information	II.	9	19
Belladonna (A) story.....	II.	12	11
—(A study in).....	II.	9	14
—According to its deserts.....	II.	3	9
—Alkaloid standard. What Johnson & Johnson say.	II.	3	6
—and scopolia plasters.....	II.	7	10
—(Atropia)	II.	10	8
—(Constituents of).....	II.	3	8
—(Constitutional effects of). *See* Locke (F. J.)			
—Extract and plasters (Assay of), by C. Caspari.....	II.	3	5
—Extracts and belladonna plasters, by H. P. Reynolds.	II.	3	1
—(Headquarters for facts on). *See* Ellingwood (F.)			
—Idiosyncrasies	II.	4	15
—Overcome. *See* Brodnax (B. H.)			
—in picture.....	II.	4	12
—(Myths and folk lore of)...	I.	12	9
—Names	I.	12	16
—Notes	I.	12	1
—or atropine. *See* Analysts' report on plasters without.			
—*See* Plasters without.			
—Plant—An ancient figure...	II.	2	21
—Exhibit of lantern slides....	II.	4	9

	Vol.	No.	Pg.
Belladonna Plaster. *See* McFarlane (T.)			
—(The) plaster analyses	II.	9	16
—(The) plaster controversy. *See* Canadian (The) analysts surrender.			
—*See* Webster (C. H.)			
—(Five hundred dollars for a)	II.	3	24
—(Johnson & Johnson's). *See* Massom.			
—(Johnson's)	I.	10	—
—(Names of)	II.	3	20
—(The supreme test)	II.	3	21
—Test. *See* Merrell (A.)			
—*See* Smith (T.)			
—Who will win this five hundred dollars?	II.	4	11
—Plasters	II.	6	10
—*See* American made plasters the best, etc.; Findings of the jury; Gilmour Bros. & Co.; Woodbury (F.)			
—A symposium on	II.	3	1
—(Assay of)	I.	12	14
—Assay. *See* Bemrose (J.)			
—At a glance	II.	3	12
—Canadian chemists taking lessons. *See* School for analysts.			
—(Dangerous)	II.	4	7
—(Difficulties in the assay of), by B. F. Davenport	II.	3	10
—Examination, contribution, etc.	II.	7	9
—(Good and bad). *See* Vail (W. H.)			
—(J. A. Greer)	I.	11	16
—(Johnson & Johnson's). *See* American made plasters, etc.; also Bauer (C.); Carnes (M. F.); Durham; Fagen (C. M.); Figeer (E.); Grothe (F. L.); Holmes (J. W.); Stedem (F. W. E.); Walter (W. C.); Welsh (J. M.); Whiting (T. H.); Woods (S. E.)			
—(Johnson's)	I.	11	15
	II.	2	21
—Public assays 12 years apart,	II.	3	19
—Startling points	II.	3	18
—Just a word	II.	4	1
—Merit proved by growing sales	II.	10	15
—Notes on). *See* Nicholson (L. S.)			
—Well built	I.	12	21
—What is truth?	II.	3	14
—What they want	I.	12	7
—Yield of alkaloid by pharmacopeal process, by A. R. L. Dohme	II.	3	5
Bellamy (C. H.) Finest effects.	II.	3	7
Bemrose (J.) Assay belladonna plasters	II.	7	11
Bernays (A. C.) Linton Moist Gauze	II.	9	5
—The operation of excision of the stomach	I.	11	4
—Aseptic sponge in the nose and nasopharnyx. *See* Simpson (W. K.)			
—Sponge in the nose and nasopharnyx	II.	3	9
Better discounts (Johnson & Johnson	I.	7	—
Betz (W. H.) *See* Red Cross Notes enlightening the world.			
Beware of fraudulent "Physicians' supply houses"	II.	9	21
—of prosperity	I.	4	—
Bibliography	I.	2	—
—(Asepsis and Antisepsis)	I.	3	—
Bile as an antidote not a new discovery	II.	6	15
Birth (The) of a cotton fibre	II.	9	7
Bladder (Catarrh of)	II.	1	18
Blank order pads	I.	7	—
Blech (G. M.) Office or factory-made dressings, which?	II.	2	9
Blister (Canthos). *See* Thorn (E. I.)			
Blistering time table	II.	6	17
Bohn (E. A.) A startling suggestion on the treatment of consumption	II.	3	16
Bombardment (The) of San Juan	I.	12	7
Book (A) with a mission	I.	2	—
—Reviews	I.	11	19
Botany of Cotton	II.	8	6
Bougies. *See* Catheters and bougies; also Kingstone Catheters and bougies.			
—etc. (Care of)	I.	4	—
Bowers (H. R.) Red Cross Notes—A study in cotton	II.	12	24
Boys in blue (Johnson & Johnson's)	II.	2	14
Br. P. plasters. *See* Canadian analysts condemn; also Canadian (The) analysts' report on; Strictly Br. P. plasters.			
Bradbury (F. W.) For cobwebs	I.	11	8
Breingan (A. S.) A layman who wants asepsis	II.	2	19
Briggs (C. S.) A desideratum (Aseptic towel)	II.	4	23
Briscoe (W. S.) Letter from regarding "Asepsis Secundum Artem	I.	2	—
Brodnax (B. H.) Belladonna idiosyncrasies overcome by acetanilid	II.	5	21
Brooking (J. G.) Digestive tablets	II.	10	9
Browne (J. S.) Red Cross Notes	II.	6	19
Buildings (Our)	I.	5-6	—
Bullet (A) in the heart for 37 years	II.	6	14
Business Manager (Our)	I.	3	—
Campbell (D. S.) Antiseptic surgical dressings	II.	5	22
Camphenol	I.	3	—
Canadian analysts arraigned	II.	5	1
—Condemn Br. P. plaster	II.	5	6
—Report on Br. P. plaster	II.	5	5
—Report on Dandelion plaster	II.	5	6
—Surrender	II.	6	9
—(Those)	II.	9	15
Canthos	II.	6	17
—*See* Blistering time table; also Street (H. A.)			
—Blister. *See* Thorn (E. I.)			
—Years make no change	II.	2	19
Care of catheters	II.	2	18
—and bougies	I.	4	—
Carnes (M. F.) Johnson's belladonna plasters	II.	4	24
Carson (J. O.) Appreciated efforts	II.	9	5
Carter (R. W.) Perfectly satisfactory. (Antiseptic dressings	II.	4	23
Caspari (C.) Assay of belladonna extract and plasters	II.	3	5
Catarrh of the bladder	II.	1	18

	Vol.	No.	Pg.
—(Chronic gastric and intestinal)	II.	1	22
Catgut (Aseptic)	I.	9	—
—(Germless). *See* Cheevers (E. E.)			
—(Germs in)	I.	1	—
—(Infected sheep's intestines)	I.	9	—
—(Johnson & Johnson's). *See* Witherspoon (T. C.)			
—Notes	I.	9	—
Catheters. *See* Smith (E. B.)			
—and bougies	I.	3	—
—(Care of)	I.	4	—
—(Kingstone)	I.	10	—
—(Care of)	II.	2	18
—(Kingstone)	II.	2	22
Caution labels. *See* New Cautions.			
Cheap drugs in hospitals	II.	10	7
Cheatham (T. A.) High standard of Johnson & Johnson's goods	II.	6	16
—Johnson & Johnson's goods,	II.	4	24
Chemists' supplies	II.	4	17
Chest protectors	I.	7	—
Chevers (E. E.) Germless catgut	II.	11	1
Children (Acute gastro-enteritis of)	II.	1	19
—(Gastric catarrh in)	II.	1	7
Chittenden (R. H.) Digestion of milk	II.	1	6
Chronic gastric and intestinal catarrh	II.	1	22
Clarke (T. F.) Clinical report iodoform Johnson	II.	7	5
Classification of cotton	II.	8	9
Cleanliness (The law of)	I.	3	—
Cleland (J. S.) Red Cross Notes	II.	6	16
Clement (G. C.) Red Cross Notes	II.	4	21
Clemmer (F. O.) Just as good —not as good	II.	4	21
Clinical gleanings	II.	1	15
Collodion bandages	II.	6	6
Colored antiseptic solutions—a precaution against accident,	II.	7	14
—Nurses	I.	7	—
Come and see us (Johnson & Johnson)	I.	5-6	—
Compound antiseptic for vaporization	II.	5	15
Conger (R. E.) *See* Appreciative pupils, etc.			
Constituents of belladonna	II.	3	8
—(The) of Iodoform Johnson,	II.	7	3
Containers (Those new)	I.	12	17
Corn plasters (How to use)	II.	2	14
Corrosive sublimate soap. *See* Customers should be warned.			
Costs no more than common kind. (Gauze for wound dressing)	I.	11	21
Cotton. *See* Bale (A) of; also Study (A) in.			
—(Absorbent) cheaper than ever	I.	8	—
—How to examine	II.	2	20
—Notes	I.	11	20
—Originality	I.	8	—
—As a filtering medium	II.	9	9
—Belt	II.	9	5
—Fiber, A typical	II.	10	3
—Mechanical structure	II.	8	5
—First pickings of the new crop. *See* Eure, Gregory & Co.			
—Ginning	II.	10	7
—Goods. *See* Baxter (J.)			
—in history	II.	8	2
—in the Spanish war	II.	8	18
—in wound dressing	I.	4	—
—(Johnson's Absorbent)	I.	12	7
—(Johnson's Absorbent)	II.	2	20
—(King)	I.	8	—
—Laboratory	I.	8	—
—(Low price)	II.	2	19
—Notes	II.	9	1
—(Red Cross) the type	II.	12	23
—Revolution	II.	8	20
—(Surgically clean). *See* Only (The) way.			
—(The best grown)	I.	12	19
	II.	2	24
—Under the microscope	II.	9	6
—Used in surgery in the U. S.	II.	8	19
Cottons and gauzes. *See* Dickinson (W. L.)			
Cuba (In)	I.	12	18
—(The Red Cross in)	I.	2	—
Cultivation of bacteria	II.	11	5
Current comments. (U. S. Pharm. revision com	II.	4	5
Customers should be warned. (Corrosive sublimate soap).	I.	2	—
Cutting out a stomach	I.	11	1
Cysts and abscesses	II.	1	18
Dalrymple (J. W.) *See* Appreciative pupils, etc.			
Daly (P. J.) Their general excellence. (Surg. adhesive plasters)	I.	12	22
Dandelion plasters. *See* Canadian analysts' report on.			
—are standard Br. P	II.	5	5
Danger (The) from Cuban cemeteries	II.	3	7
Dangerous belladonna plasters	II.	4	7
Daniel (J. A.) Red Cross Notes,	II.	5	23
Davenport (B. T.) Difficulties in the assay of belladonna plasters	II.	3	10
Davis (J. A.) Red Cross Notes,	II.	4	20
Davis (W.) Cheaper papoid	II.	9	20
Davoll (D. L.) The committee will correct and undo the errors of their expert	II.	4	5
Death of the skunk. (Iodoform)	II.	9	21
Decalcified bones in the treatment of wounds	II.	5	15
Defects in market cotton	II.	8	7
Diabetes mellitus	II.	1	20
Diastase	II.	12	22
—(A new)	II.	6	7
—(A note on)	II.	10	23
Dickinson (W. L.) That feeling of safety.—Gauzes and cottons	II.	2	19
Digest (To) milk	II.	1	17
Digesting melon (The)	II.	3	11
Digestion (enfeebled)	II.	1	8
—in a stream of water	II.	1	12
—(Intestinal)	II.	1	7
—(New discoveries relating to)	II.	1	3
—(Papoid)	I.	10	—
Digestive tablets. *See* Brooking (J. E.)			
—(Johnson's)	I.	10	—
	I.	11	19
	II.	1	1
—*See* Williams (T. D.)			
—Free of cost at your door	II.	1	11
—(Testimonial of George S. Martin	I.	12	24
	II.	1	2
Dimock (D. W.) Johnson's Belladonna plasters	II.	5	23
Dinges (J. N.) Uses only J. & J. goods	II.	3	19
Disinfection (The) of dressings,	II.	12	21

	Vol.	No.	Pg.
—A startling suggestion on the treatment of consumption. By E. A. Bohm,	II.	3	16
—Acts on all forms of proteid matter	II.	1	19
—An array of names that tell a story	II.	1	14
—and its preparations. (Johnson & Johnson's)	II.	12	24
—and other preparations. Johnson & Johnson's). *See* Glasier (W. H.)			
—(Cheaper). *See* Davis (W.)			
—Digestion	I.	10	—
—A famous experiment	I.	10	—
—in a stream of water	II.	1	13
—(How to use)	II.	1	10
—(In love with). *See* Tharp (G. A.)			
—Pointers	II.	1	7
—Price reduced	I.	10	—
—(Reduced price of)	I.	10	—
	II.	6	19
—in stricture. *See* Lytle (T.)			
—(Ten years of)	I.	10	—
—(Therapeutic action of)	I.	10	—
	II.	1	9
—(Therapeutics)	I.	10	—
Pasteur and the surgeons	II.	12	4
Patient's (A) tribute	II.	10	16
Pattison (L.) *See* Appreciative pupils, etc.			
Pelletier (E.) *See* Undertakers (The) and lintine.			
Pepsin, etc. *See* Acid—Alkaline —Neutral.			
Pharmacal meetings	I.	1	2
Pharmaceutical meetings	I.	3	—
	I.	4	—
	I.	7	—
Pharmacopeia of Thomas Fuller. *See* Remington (J. P.)			
Physician (A) who healed himself	II.	1	8
Physicians' list	I.	7	—
—Supply houses, Beware of fraudulent	II.	9	21
Pillsbury (E. S.) Red Cross Notes	II.	4	17
Pioneers	I.	9	—
Plaster (Belladonna) Johnson's	I.	10	—
—of Paris in surgery. *See* Drake (N. A.)			
—(Surgeon's adhesive). *See* Daly (P. J.)			
—(Thapsia) poisoning (by)	I.	1	—
Plasters (Adhesive) for stitch in the side	II.	3	17
—and absorbent cotton (Johnson's). *See* Jackson (A. C.)			
—(Belladonna)	I	12	7
—*See* Woodbury (F.)			
—Assay of	I.	12	14
—J. A. Greer	I.	11	16
—Johnson's	I.	11	15
—Well built	I.	12	21
—(Corn). How to use	II.	2	14
—(How to keep). *See* Knill (H. C.)			
—(Johnson's). *See* Santee (G. O. O.)			
—(Johnson's belladonna)	II.	2	21
—Retail prices of	II.	9	22
—(Why do they spoil?)	I.	4	—
—Without belladonna or atropine, etc	II.	5	7
Poisoning by thapsia plaster	I.	1	—
Preparations (Secret and proprietary)	II.	2	17
Preservation of iodoform gauze,	II.	4	7
Pressure (Sterilization by)	II.	2	15
Prevent (To) ether nausea	II.	12	24
Proprietary articles (Must be stamped)	II.	3	23
Prosperity (Beware of)	I.	4	—
Proximate analysis of cotton fibre (raw)	II.	8	10
Pryor's gauze	I.	1	—
Public assays 12 years apart, etc. (Johnson's belladonna plasters)	II.	3	19
Publisher's notice	I.	1	—
Pulmonary consumption	II.	1	14
Punishment for substitution	II.	12	5
Pyelitis	II.	12	8
Quality, price	I.	3	—
Rademacher (H. A.) *See* Red Cross Notes enlightening the world.			
Railway hospital car	I.	4	—
Rapidity of production (of bacteria)	II.	11	4
Ransom (C. H.) *See* External therapy.			
Reader (To the). (Red Cross Notes)	II.	9	1
Reading course in bacteriology	II.	11	9
Ready for war	I.	11	15
Recent advances in antiseptic surgery	I.	8	—
Red Cross aseptic dental specialties (Cotton)	II.	8	24
—Athletic supporters	I.	12	20
—Cotton	II.	8	19
—The type	II.	12	23
—First aid to wheelmen. *See* Healy (P. L.)			
—Gauze	I.	11	11
	II.	3	22
—(Knights of the)	I.	2	—
—Ligatures. At last	I.	9	—
	I.	11	16
	II.	2	18
—*See* Fitz-Randolph (R. B.); also Hawkins (J. A.); Severe (A) test.			
—How to open them	II.	10	12
—The way they are prepared	I.	9	—
—Notes	II.	2	11
	II.	4	19
	II.	4	23
	II.	8	9
—*See* Abberger (B. S.), also Browne (J. S.); Clement (G. C.); Cleland (J. S.); Daniel (J. A.); Davis (J. A.); Dodson (J. E.); Douglass (I.); England (F. H.); Floeckinger (G. C.); Gatchell (E. R.); Granger (Anna C.); Grosvenor (L. N.); Hopkins (I. D.); Hubbard (W. A.); J. (M. A.); Latham (V. A.); Marchand (P. A.); Martin (I. J.) jr.; Martin (I. S.); Pillsbury (E. S.); Reader (To the); Rowe (E. V.); Russell (L.); Simpson (J. C.); Simpson (W.); Stewart (J. S.); Thum (L.); Townsley (F. L.); Underwood (J. C.); Underwood (W. & Emma); Vankleeck (J. H.); Wise (P. V.) wanted for reference.			
—(A study in cotton). *See* Bowers (H. R.)			

	Vol.	No.	Pg.
—Appreciative pupils of)	II.	5	18
—(Completion of vol.)	II.	12	1
—Doesn't conflict with the ethics of the profession,	II.	3	18
—Enlightening the world	II.	9	18
—(Historical Soc. of Kansas quests for library)	II.	2	11
—Letters commendatory of	II.	3	17
—Our special edition	I.	5-6	—
—Organization. *See* Ballard (W. D.)			
—Park. *See* Expansion.			
—(The)	I.	7	—
—(The) in Cuba	I.	2	—
—in Greece	I.	4	—
—in Minnesota	I.	3	—
—Trademark (Infringement of)	II.	11	22
—Trademark (The)	I.	8	—
Reduced price of papoid	II.	6	19
Relative value of antisepsis and improved technique in operative gynæcology	II.	12	23
Remington (J. P.) Let us be thankful	II.	6	8
Remove (To) the odor of iodoform from the hands	II.	4	7
Reproduction (of bacteria)	II.	11	3
Retail prices of plasters	II.	9	22
Reynolds (H. P.) Belladonna extracts and belladonna plasters	II.	3	2
Rice (C.) The committee will correct and undo the errors of their expert	II.	4	4
—Three tenths per cent. (belladonna alkaloid) the proper standard	II.	3	5
Roentgen rays on bacteria	I.	12	22
Ross (W.) *See* Red Cross Notes enlightening the world.			
Rowe (E. V.) Red Cross Notes,	II.	6	16
Rubber adhesive plaster (Johnson & Johnson's). *See* Harrison (L. D.) Prices	II.	4	17
Rules and suggestions	II.	7	14
Russell (L.) Red Cross Notes, etc.	II.	5	23
Sadtler (S. P.) Analysis of Iodoform Johnson—odorless,	II.	6	13
—Chemical analysis of odorless iodoform	II.	7	6
San Juan (Bombardment of)	I.	12	7
Santee (G. O. O.) Absolutely reliable	II.	3	18
School for analysts	II.	7	8
Scopolia carnolioca	II.	4	8
—Plasters. *See* Belladonna and scopolia plasters.			
Scott's emulsion (The Spanish bombard)	II.	2	20
Secret and proprietary preparations	II.	2	17
Seventy-eight successful operations for appendicitis, etc	II.	5	24
Severe (A) test. (Red Cross ligatures)	II.	10	10
Sherburne (S.) *See* Red Cross Notes enlightening the world.			
Sherman & McConnell Drug Co. *See* Death of the skunk.			
Sherwood (F. R.) Johnson & & Johnson's surgical dressings	II.	6	18
Shima (M. M.) *See* Red Cross Notes enlightening the world.			
Simmons (B. G.) The teeth: their daily care	II.	6	20
Simpson (J. C.) Red Cross Notes	II.	11	6
Simpson (M. S.) Johnson & Johnson's goods in Honolulu hospitals	II.	9	19
—*See* Red Cross Notes enlightening the world.			
Simpson (W.) From those in authority. (Red Cross Notes)	II.	4	19
Simpson (W. K.) Bernays' aseptic sponge in the nose and nasopharnyx	II.	6	4
Sir Hubert's praise	I.	7	—
Sizes of bacteria	II.	11	2
Slack (C. M.) Worthy of highest praise	II.	2	20
Sleeping (The) nightshade	II.	5	16
Smith (E. B.) Catheters	II.	9	24
Smith (T.) Belladonna plaster test	II.	6	11
Snell (F. L.) Papoid	II.	6	3
—*See* External therapy.			
Soap (Corrosive sublimate)	I.	2	—
Soaps (Antiseptic)	I.	11	22
Softening tough meat	II.	1	1
Some beginnings. (Microbes)	II.	4	9
Spanish bullets	II.	3	8
—(The) bombard Scott's emulsion	II.	2	20
Splints (Gutta-percha sheets for)	II.	12	20
Standard gauze	I.	12	23
	II.	2	16
Start (From) to finish. (Cotton)	II.	8	11
Starting points. (Johnson's belladonna plasters)	II.	3	18
Steam germ killer	II.	3	19
Stedem (F. W. E.) Johnson & Johnson's belladonna plasters	II.	4	18
—Johnson & Johnson's goods	II.	6	19
Stephens (E. J.) *See* External therapy.			
Stephens (W. A.) A blister that failed	II.	3	21
Sterile gauze makes sterile milk. *See* Upton (C. O.)			
Sterilization by pressure	II.	2	15
—of dressings	II.	11	11
—of iodoform	II.	10	18
—of syringes	II.	2	10
Sterilized cotton fibre	II.	8	12
—Gauze. *See* Bellamy (C. H.) Finest effects	II.	3	7
—Surgical dressings	I.	11	9
—Towels. *See* Marcy (H. O.); also Osborn (E. B.)			
Sterilizer (Vapor vacuum)	I.	9	—
Sternberg (Brig.-Gen. George Miller). Sketch of	II.	2	1
Sternbergiana. The writings of George M. Sternberg	II.	2	6
Stewart (J. S.) Evidence of life,	II.	3	21
Stomach (Cutting out a)	I.	11	1
—(Excision of) by A. C. Bernays	I.	11	4
—of, by H. Summa	I.	11	2
Stoop (A) to blunder, or the mistakes of an expert. U. S. Pharm. revision committee.	II.	4	14
Street (H. A.) The other kind was bad—Canthos	II.	2	19
Strictly Br. P. plasters are condemned by Canadian analysts,	II.	5	5
Stroup (G. H.) *See* External therapy.			
—*See* Red Cross Notes enlightening the world.			
Structure of bacteria	II.	11	2
Study (A) in belladonna	II.	9	14
—in cotton	II.	8	1
	II.	9	6
—in dyspepsia	II.	7	15
—of germs	II.	11	1

	Vol.	No.	Pg.
Styptic leaves	I.	1	—
Sublimate tablets, danger in. *See* Dunham (S. A.)			
Substitution (Punishment for)	II.	12	4
Sulphur fumigators	I.	2	—
Summa (H.) The first operation of excision of the stomach in America	I.	11	2
Summer complaints	II.	1	13
Supply houses. *See* Irregular physicians'.			
Supreme test (The). (Belladonna plaster)	II.	3	21
Sure enough U. S. P. A symposium on belladonna plasters	II.	3	1
Surgeon-General (Our). Sketch of	II.	2	1
Surgeon's adhesive plaster. *See* Daly (P. J.)			
Surgery (Antiseptic) Recent advances in	I.	8	—
Surgical (A) revolution	I.	9	—
	I.	11	22
—Antiseptics (The newer)	I.	4	—
—Dressings. *See* Asepsis Secundum artem; also Bailey (M. F.) One hundred operations, etc.; Clemmer (F. O.); Santee (G. O. O.)			
—(Antiseptic). *See* Campbell (D. S.)			
—(Bacteriological tests	I.	11	18
—(Johnson & Johnson's). *See* McCoy (H. A.); also Townsend (I.)			
—(Pioneers in)	I.	9	—
—Preparation of. *See* Rules and suggestions.			
—Quality, price	I.	3	—
—(Sterilized)	I.	11	9
—(Who should make)	II.	12	5
—Gauze. *See* Nock (T. G.)			
—Materials and plasters. (Johnson & Johnson's). *See* Hauck (E. F.)			
—Supplies. (Johnson & Johnson's). *See* McDougall (D. D.)			
Suspensory bandages	I.	2	—
Sutures, sponges, etc., by L. Elliot	I.	12	17
Swoyer (O. D.) Red Cross Notes	II.	4	23
Syringes (Sterilization of)	II.	2	10
Tablets (Digestive) Johnson's	I.	10	—
Taking care of our soldiers	I.	12	16
Tattoo marks and gunpowder stains (Removal of)	II.	1	4
Teeth (The): their daily care. *See* Simmons (B. G.)			
Ten years of papoid	I.	10	—
Tensile strength of cotton fibre,	II.	8	9
Test for examination of the amount of iodine in iodoform,	II.	7	4
Testing absorbent cotton	II.	8	15
Thapsia	I.	1	—
—Plaster (Poisoning by)	I.	1	—
Tharp (A. G.) In love with papoid	II.	2	20
Therapeutic action of papoid	I.	10	—
	II.	1	9
—Agents	II.	1	21
Therapeutics of papoid	I.	10	—
Therapy (External). *See* External therapy.			
Thiesen (W.) Robinson Drug Co. Johnson & Johnson's goods	II.	5	23
Things well done. (Booklet on asepsis)	II.	4	20
—(Johnson & Johnson's belladonna plasters)	II.	5	23
Thorn (E. I.) Years make no change—Canthos blister	II.	2	19
Thum (L.) Red Cross Notes	II.	5	20
Townsley (F. L.) Red Cross Notes	II.	6	16
Townsend (I.) Surgical dressings, etc. (Johnson & Johnson's)	II.	6	3
Trade Mark (The Red Cross)	I.	8	—
Trained nurse (How to become a)	I.	4	—
—Nurses (Colored)	I.	7	—
Treatment (The) of leg ulcers	II.	1	16
Trimmer (E. T.) *See* Appreciative pupils, etc.			
Typical (A) cotton fibre	II.	10	3
Ulcers (Indolent)	II.	1	16
—(The treatment of leg)	II.	1	16
Undertakers (The) and lintine	II.	10	10
Underwood (J. C.) Red Cross Notes	II.	4	20
Underwood (W. & Emma). Red Cross Notes	II.	11	21
Unger (C. W.) Deceived by an imitation	I.	12	21
Upton (C. O.) Sterile gauze makes sterile milk	II.	9	9
U. S. Pharmacopeia Committee of Revision. *See* Belladonna plasters	II.	6	10
U. S. Pharm. Revision Com. *See* Canadian analysts arraigned; also Current comments; Davoll (D. L.); Findings of the jury; Hallberg (C. S. N.); Johnson & Johnson—Misuse of the name of the, etc.; Rice (C.); Stoop (A) to blunder, etc.			
Use (The), abuse and odor	II.	7	16
Useful bacteria	II.	11	14
Uses of lintine	II.	5	10
Vaccina (Microbe of). *See* Microbe (The) of vaccina.			
Vail (W. H.) Good and bad belladonna plasters	II.	12	16
Vander Veer (A.) Odorless iodoform	II.	7	7
Vankleeck (J. H.) Red Cross Notes	II.	11	6
Vapor-vacuum sterilizer	I.	9	—
Vegetable ferments	II.	1	5
Vest (J. W. H.) *See* External therapy.			
Voigt (O. P.) Johnson & Johnson's digestive tablets, Cases treated with	II.	6	25
Waddington (J. E. G.) Johnson & Johnson's Z. O. plaster	II.	12	8
Walter (W. C.) Belladonna plasters	II.	4	24
—Johnson & Johnson's belladonna plasters	II.	6	7
War echoes	II.	3	18
—Emergency (For) Red Cross gauze	I.	11	11
—Order (A) that will be obeyed,	I.	12	2
—Talk	I.	11	14
—(Wounds in)	I.	11	8
Watson (I. A.) *See* Undertakers (The) and lintine.			
Waugh (W. F.) Johnson's odorless iodoform	II.	10	18
Way (The) Red Cross ligatures are prepared	I.	4	—
Weapon-salve (The)	II.	3	21
Webster (C. H.) The belladonna plaster controversy	II.	6	24

	Vol.	No.	Pg.
Weddick (J.) Hawaii is with us,	I.	12	22
Welsh (J. M.) Johnson & Johnson's belladonna plasters....	II.	4	18
What are bacteria?.....	II.	11	1
What is truth?.....	II.	3	15
Wheelmen's first aid. *See* Mahoney (J. J.)			
Whitehead (W. H.) Iodoform Johnson	II.	12	18
Witherspoon (T. C.) Johnson & Johnson's catgut.....	II.	5	21
Wood fibre splints.....	II.	6	18
Woodbury (F.) What does a physician mean when he writes for "Emplastrum belladonnæ, U. S. P.?".....	I	12	3
Woods (S. E.) Belladonna plasters (Johnson & Johnson's).	II.	4	22
Worse than Spanish bullets.....	I.	12	18
Wound dressing (Cotton in)....	I.	4	—
—infecting bacteria.....	II.	11	7
—Treatment (New).....	I.	3	—
Wounded (The) in naval warfare	I.	11	19
—(The) at Santiago.....	II.	3	6
Wounds (Gun-shot).....	I.	11	22
—in war.....	I.	11	8
Young (W.) *See* External therapy.			
—J. & J. ligatures	II.	9	19
Zinc oxide adhesive plasters. *See* Haight (N. E.); also Waddington (J. E. G.)			
Whiting (T. H.) Belladonna plasters (Johnson & Johnson's)	II.	4	22
Who should make surgical dressings?	II.	12	5
Who will win the five hundred dollars?	II.	4	10
Why do plasters spoil?.....	I.	4	—
Williams (T. D.) None other wanted. (Johnson's digestive tablets).....	II.	3	19
Williams (T. W.) *See* Red Cross Notes enlightening the world.			
Winter is coming. (Chest protection)	I.	7	—
Wise (P. V.) Wanted for reference	II.	9	19
—*See* Red Cross Notes enlightening the world.			

E. N. E.

15258 (

RED CROSS NOTES.

JOHNSON & JOHNSON LABORATORIES.

No. 1 — New Brunswick, N. J. — May, 1897.

BOSTON MEDICAL LIBRARY APR 2 1906

Notice.

This leaflet is one of a series which will be issued more or less regularly (probably once a month) from the press of Johnson & Johnson.

The primary intent is to give information to our employees, numbering many hundreds; to our direct patrons, numbering many thousands —as to our new products, new methods, new issues of pamphlets and other publications, together with such other matters which may be deemed to be of interest to all concerned.

They are issued from a busy laboratory where the nature of the occupations preclude any attempt at literary or scientific merit.

This modest effort is not a "Journal" nor an "Organ." It is simply a leaflet, supplementing our issues of monographs, etc., containing certain information about our work and our business; these leaflets will be sent without cost to such persons as we may be able to reach through the regular channels of trade and correspondence.

The current issues of these leaflets therefore will probably be received by all who, during the month when issued, purchase a bill of goods, have any correspondence with us, or visit our laboratories.

To insure a regular delivery of every issue, it will only be necessary to send a request to this effect, by postal card or otherwise.

Mercuride Leaf.

The old reliable antiseptic, bichloride of mercury, comes out in a new dress, in one of the recent products of our laboratory. It is in the form of a leaf made of specially prepared absorbent cotton fiber, compressed into a sheet and cut into leaf shape.

The leaf is saturated with a solution of bichloride of mercury combined with ammonium chloride, or as suggested by Dr. A. C. Bernays, with citric acid, in a way and in proportion that each leaf contains 7½ grains of mercuric salt. Thus one leaf dissolved in a pint of water will yield a solution of the antiseptic in the proportion of one to one thousand (1 to 1000).

The leaves are designed to take the place of the more or less insoluble compressed tablet, over which they possess many advantages. For instance, the element of safety. Many serious and even fatal accidents have resulted by the mistaking of the mercuric tablet for a harmless lozenge intended for internal use. A Mercuride Leaf shows for itself what it is, and what it is for; it will never be swallowed by mistake. And their advantage is their ready solubility. Compressed mercuric tablets, as ordinarily made, must of necessity contain a large amount of foreign matters, such as French chalk, glue, and other adhesive and excipients.

These leaves are simply pure cotton fiber and the antiseptic salt. The antiseptic is quickly dissolved from the fiber. In fact almost at the instant the leaf is wetted.

Still another advantage is the fact that the cotton fiber in the leaf is colored with a soluble coloring matter, which upon solution imparts a distinct tint to water, giving warning to the user that the solution is a chemical one.

These Leaves are certainly much more convenient and safe either for the professional or for the use of the laity.

For trade purposes the leaves are put up in boxes containing 25 leaves. Each leaf is 2 x 3 inches, contains 7½ grains of Mercuric salt, sufficient to make one pint of a solution of the antiseptic in the strength of 1 to 1000.

To make a weaker solution from this Leaf is exceedingly simple. One-half of a Leaf in a pint of water will make a solution of Mercuric salt 1 to 2000.

One-quarter of a Leaf in a pint of water will make a solution of 1 to 4000, etc.

Thus the user may quickly and accurately calculate and make a solution of any desired strength, using any convenient quantity of water.

Any physician on request will receive a sample of Mercuride Leaf.

"Asepsis Secundum Artem."

Our printing and binding departments re now busy issuing a 24-page monograph ⁄ith an illuminated cover bearing the above itle. Those of our friends who have exam-ıed the proofs expressed the opinion that his is by far the finest monograph we have ver issued, and the best thing that has ver been done in this particular line. This ; highly flattering, as we have heretofore ıaued many monographs which have proved seful and instructive.

The object of this book is to give the ıethods under which surgical dressings re prepared in our aseptic laboratories. 'he book and the methods outlined therein fford striking evidence of the advancement f the surgical art, as well as illustrate the reat progress which has been made in the echnical production of dressing material. 'he contrast is most striking when we ompare this monograph and the advanced ıethods shown with those formulated in Modern Methods of Wound Treatment," ıaued ten years ago, which was tbe first oncise manual upon the subject of anti-epsis published in this country,

The present work is illustrated with 25 ıalf tone engravings, illustrative of the rocesses under which the dressings are repared. The subjects embraced in the ook are as follows:—

"The Advance of Asepsis," "Aseptic ıaboratories," "Descriptions and Illustra-ions of the Buildings and Aseptic Rooms, ⁄ith Rules Governing the Same," "Sterili-ıation," "Methods, Processes and Appar-tus," "Operatives in Asepsis," "Aseptic landling and Hermetic Sealing," "Reste-ization," "Aseptic Ligatures," "Bacterio-)gical Tests," "Surgical Dressings in Com-ıerce," "Bi-sterilized Gauze, Sterilized otton and Bandages," "Pryor's Gauze," Aseptic Armamentarium"

There is also a complete bibliography of he booklets, monographs, etc., of scientific ıterest which have from time to time been ıaued from our laboratory for circulation mong physicians and pharmacists.

A copy of this monograph will be sent on equest to any physician or pharmacist.

Pharmacal Meetings.

MAY, 1897.

Alabama, May 12. Selma.
Arkansas. May 12. Little Rock.
California. May 12. San Francisco.
Delaware. May —. Milford.
Florida. May. 12. Pensacola.
Georgia. May 18. Macon.
Indian Territory. May 20. South McAlester
Kansas. May —. Junction City.
Louisiana. May 12. New Orleans.
New Jersey. May 5. Princeton.
North Carolina. May 12. Raleigh.
Texas. May —. Galveston.

Pryor's Gauze.

We have had considerable inquiry regarding this gauze since placing it in our price list in January.

It is in substance an Iodoform Gauze containing about 10 per cent. of iodoform, and prepared by a special formula and under the immediate direction of Prof. William R. Pryor, of the College of Physicians and Surgeons, N. Y. City, 1881; Professor Gynæcology, N. Y. Polyclinic; Visiting Gynæcologist St. Elizabeth's Hospital; Member N. Y. Obstetrical Society, Fellow Academy of Medical Society Alumni Bellevue Hospital and N. Y. Pathological Society; Founding Member International Periodical Congress Obstetricians and Gynæcologists; Consulting Surgeon City Hospital; co-Author "Text Book of American Gynaecology," and under his authority we have placed it before the medical profession.

The difference between this and other iodoform gauze consists in the methods of preparation which are particularly important and materially differ from any other process of making an iodoform dressing.

They include a preliminary preparation, sterilization of fine mesh absorbent gauze, impregnation of the prepared gauze with a solution of purified iodoform in volatile solvents. The cells of the gauze fiber are saturated with this solution. Upon evaporaton of the solvents, the cells are left completely filled with the antiseptic. The impregnated fibers are then passed through a weak boiling solution of mercuric chloride. This solution is used not only for sterilization but it acts as a mordant-like agent, thoroughly fixing the iodoform within the fiber. The mercuric chloride is decomposed in the reaction.

The dressing is finally packed in sterilized containers, steam sterilized in a vacuum sterilizing chamber, during which process the jar is hermetically sealed. The entire process is conducted according to the rules of the most precise technical cleanliness. The result is an iodoform dressing of the greatest absorbency, having the greatest antiseptic properties. It is is perfectly non-poisonous, non-irritating and does not decompose even in septic wounds.

The dressing is ready for use without any further preparation. Prof. Pryor has shown remarkable results in his practice from the use of this dressing.

We believe it will be given preference over any other form of iodoform dressing, and one that gives increased, continuous action to iodoform as an antiseptic. Further it is a dressing of great simplicity and safety, one that is always aseptic. It is packed in glass jars, one and five yards each.

Further literature upon this gauze may be found in "Asepsis Secundum Artem," p. 20.

Styptic Leaves.

Since the days when "Monsells Solution" was in vogue but little improvement has been made in the styptic applications.

Johnson & Johnson have made an advance step in their Styptic Leaves. They are leaves of compressed cotton fiber saturated with a solution of Ferric Chloride.

Gossypium Stypticum, commonly called styptic cotton, has never been a pronounced success. The process of preparation rots and destroys the cotton fiber to such an extent that when used it crumbles to dust. This leaves the wounded surface filled with foreign matters that are very irritating.

The Styptic Leaves are like a piece of cloth, can be cut or torn into any sort of shape, and form a covering to the part to which they are applied. Thus in applying Styptic Leaves, we have a styptic which will coagulate the blood, stop bleeding, and form a covering to the wound.

Advanced surgeons decry the use of styptics upon bleeding surfaces, but there is a large demand for them among both the profession and laity. The use of Styptic Leaves is more or less rational; the iron salts quickly form a blood clot and are antiseptic in action. Under this treatment small wounds quickly heal.

Styptic preparations are generally called for in fitting up accident cases.

Styptic Leaves will be found extremely useful in emergency dressings.

Styptic Leaves will remain as made, will not deteriorate in keeping, as does the styptic cotton, etc.

A box of Styptic Leaves will go farther than an ounce package of styptic cotton, or any similar preparation.

Trade price, $1.75 per dozen boxes. Each box contains 25 leaves.

Poisoning by Thapsia Plaster.

OFFICE OF
J. M. TURK,
PHYSICIAN AND SURGEON.
Professional Calls Promptly Answered Day or Night.

CANTON, GA., May 1st, 1897.

MESSRS. JOHNSON & JOHNSON.

Gents.—I have been using your Thapsia Plaster for a long time with best results, but a few times have had trouble from its toxic effect. I noticed some time ago an antidote you had sent out. I have failed to remember what it was. Please send it to me at once, as I have a case that is giving me some trouble at this time.

Yours truly,
JOHN M. TURK.

This letter is proof of several truths, one of which is that a well made Thapsia Plaster is a powerful revulsive and counter-irritant. Another is that some patients possess a peculiar idiosyncrasy toward the action of thapsia.

There is also shown a further proof that the plaster the doctor used, viz., the Thapsia Plaster of Johnson & Johnson, is what it purports to be.

The symptoms produced by the action of a good thapsia plaster are first a scarlet coloration at the point of application. This is followed by an itching and burning that sometimes becomes intense and painful; scratching or rubbing tends to spread and hasten the eruption. The eruption finally assumes the form of a punctuate or Miliary rash, thickly scattered over the surface covered by the plaster.

In aggravated cases, such as Dr. Turk mentions, the papules proceed to pustulation, in rare instances giving a troublesome sore. However, there is seldom any remaining scar.

The remedy is simple.

The action of Thapsia Plaster may be stopped and the irritation perfectly controlled by the application of hot water; it should be applied as hot as can be borne.

In the application of hot water, it will be found that by dabbing it on with cloths or a sponge, after a little, it can be applied quite at the boiling point. Quick relief follows.

In aggravated cases, after the application of hot water, the part may be wrapped in carbolized gauze.

In making and spreading Thapsia Plaster, in our plaster laboratories the workers often encounter trouble by accidental contact with the mass. As an outcome of such accidents, the simple antidote—hot water, was discovered by Mr. R. W. Johnson.

The following notice and caution is placed in every yard roll of Thapsia Plaster put up by Johnson & Johnson.

Druggists should paste this notice in their hat or some other convenient place, and call attention to it when dispensing Thapsia Plaster.

THAPSIA.

IMPORTANT.

Plasters prepared with "Thapsia Garganica" have been found to be very unreliable. We have seen the action of the plasters vary greatly from one lot of the resin, and until within a short time have been unable to manage this drug, and have the plasters satisfactory. We have discovered a method for overcoming all these difficulties, and the art of manufacturing Thapsia plasters of uniform strength and action. During the experiments our Mr. R. W. Johnson was badly poisoned by Thapsia; in an accidental way he discovered that **HOT WATER** would STOP THE ACTION OF THE DRUG, AND ALLAY THE ITCHING. The water should be VERY HOT, and applied with cloth bandages. Pharmacists should notify physicians of this fact, as they may wish to relieve their patients by this discovery.

JOHNSON & JOHNSON,
Manufacturing Chemists,
New Brunswick, N. J., U. S. A.

The Jersey Microscopists and the Germs in Catgut.

The New Jersey Microscopical Society was founded in 1869. Its membership embraces many of the leading scientists of the State At its last public exhibition, there was shown slides and cultures of the *Bacillus anthracis* from the Bacteriological Laboratory of Johnson & Johnson.

This bacillus is the dreaded bacillus of anthrax or "wool sorters' disease." This disease is common among sheep, consequently this microbe is often found in the intestines of sheep, which is the common source of what is known as Catgut. Experiments in the J. & J. laboratories have shown that this bacillus when lodged in the tissues of the gut, is quite securely entrenched, and that it is not easy to destroy them without injury to the ligature material. The ordinary methods of treating catgut with antiseptic oils, alcoholic solutions, even the process of boiling in alcohol, do not reach, much less destroy them without injury to the ligature.

Tests in this laboratory have proven conclusively that to destroy the anthrax germ in catgut, requires the use of several successive processes, all directed toward reaching the infinitesimal organism whose powers of resistance are remarkable.

The Red Cross Ligatures pass through some seven or eight successive processes of sterilization, one of which is boiling in a compound of cumol at a temperature of 320 to 340 degrees Fahrenheit.

This process is effective for the destruction of the anthrax bacillus, as has often been demonstrated by purposely infecting ligature strings with these germs and then passing the infected strands through the sterilization processes.

This germ, the most resistant of all wound infecting organism, is always destroyed by this treatment.

Free If You Write For Them.

Any of the following monographs, leaflets, etc., may be obtained free of charge by any Physician or Pharmacist who will send a request on a postal card or otherwise to Johnson & Johnson, New Brunswick, N. J.

ASEPSIN SECUNDUM ARTEM.—The practical application of the art of Asepsis to the preparation of surgical dressings. Description of the methods by which surgical dressings are prepared in Johnson's Aseptic laboratories, A description of laboratories, operatives, training, rules of government, bacteriological tests, etc. 25 half tone engravings. Illuminated cover.

MODERN SURGICAL DRESSINGS.—Address by Fred B. Kilmer before the Philadelphia Pharmaceutical Meeting upon the science and practice involved in preparing Surgical Dressings. Reprint from American Journal of Pharmacy. 16 pages.

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RED CROSS CARD.—A card to hang in the sick room giving practical directions as to ventilation, disinfection, etc.

NOTES ON CATHETERS AND BOUGIES.—How Catheters are made. Suggestions on the keeping and care of Flexible Soft Gum Instruments. Methods of sterilization. Sizes, shapes, etc. Illustrated. 12 pages.

Medical Association Meetings.

MAY, 1897.

American Association of Genito-Urinary Surgeons. Washington, D. C. May 4, 5 and 6.

American Academy of Medicine. Philadelphia, Pa. May 29 and 31.

Association of American Physicians. Washington, D. C. May 4, 5 and 6.

American Dermatological Association. Washington, D. C. May 4, 5 and 6.

American Gynæcological Society. Washington, D. C. May 4, 5 and 6.

American Neurological Association. Washington, D. C. May 4, 5 and 6.

American Laryngological Association. Washington, D. C. May 3, 4, 5, 6 and 7.

American Ophthalmological Society. Washington, D. C. May 4, 5 and 6.

The American Orthopedic Association. Washington, D. C. May 4, 5 and 6.

The Association of Military Surgeons of the U. S. Columbus, Ohio. May 25, 26 and 27.

American Climatiological Association. Washington, D. C. May, 1897.

National Association of Railway Surgeons. Chicago. Ill. May 4, 5 and 6.

American Pædiatric Society. Washington, D. C. May 4, 5 and 6.

Army and Navy Medical Association. St. Louis, Mo. May 18.

The American Laryngological and Otological Society. Washington, D. C. May 1 and 3.

American Otological Society. Washington, D. C. May 4.

The Arkansas Medical Society. Little Rock. May 12.

Connecticut Medical Society. Hartford. May 26 and 27.

Illinois State Medical Society. East St. Louis. May 18.

Indiana State Medical Society. Terre Haute. May.

Iowa State Medical Society. Marshalltown. May 19, 20, 21.

The Louisiana State Medical Society, New Orleans. May 4.

Michigan State Medical Society. Grand Rapids. First week in May.

Missouri State Medical Association. St. Louis. May.

New Hampshire Medical Association. Concord. May 24 and 25.

Nebraska State Medical Society. May 18, 19 and 20.

New Mexico Medical Society. Albuquerque. May 12.

The Ohio State Medical Society. Cleveland. May 19, 20 and 21.

The Medical Society of the State of Pennsylvania. Pittsburg. May 18, 19 and 20.

Tennessee State Medical Society. Nashville. May 11.

The Washington State Medical Society. Spokane. May 11 and 12.

The Wisconsin State Medical Society. Racine. May 5.

L. M. R.

RED CROSS NOTES.

JOHNSON & JOHNSON LABORATORIES.

No. 2. NEW BRUNSWICK, N. J. JUNE, 1897.

BOSTON MEDICAL LIBRARY APR 2 1906

ANNOUNCEMENT.

These leaflets are issued monthly supplementary to our monographs, booklets and other publications.

The issues are sent without cost to such persons as we may be able to reach through the regular channels of trade and correspondence.

All persons who, during the month of issue, purchase a bill of goods, have any correspondence with us, or visit our laboratory, will receive a copy.

Those who desire to receive the RED CROSS NOTES regularly must send a request to this effect

JOHNSON & JOHNSON,
New Brunswick, N. J.

THE RED CROSS IN CUBA.

So far the Red Cross Society has been able to do but little in Cuba. One of the fundamental principles of the Red Cross Society is "neutrality." This compels it to extend its aid to all contending parties alike. The policy of the Weyler government in Cuba allows no communication or aid to be given to the insurgents. It would therefore be impossible to secure protection to the Red Cross surgeons and nurses from the imperial government.

Recently a large donation was offered to the Red Cross Society on the condition that it should be used wholly for the relief of the Cuban patriots. It was declined as the Society would not bind itself to aid only one side. It is probable that in connection with the proposed measures of relief for the Americans in Cuba, now under consideration by our own government, there will be sent a Red Cross corps with supplies.

The flag of "humanity and neutrality" may yet be planted in Cuba under the protection of the stars and stripes, but probably not otherwise.

* * *

But the Red Cross does reach Cuba by other means. In our shipping department almost daily can be seen large crates of absorbent cotton, gauze, bandages and surgical supplies bearing the Red Cross label of Johnson & Johnson. These are destined for Havana for the relief of the wounded Spanish soldiers. There are sometimes seen in the same place packages bearing this same life-saving symbol which, while not marked to be shipped to the rebel leader Gomez, will reach his suffering army just the same. Our shipping clerk believes that the Red Cross should go wherever there is sickness and suffering. He is therefore sending it across the trocha and past the blockade, anywhere that human suffering may need its aid.

DRY ANTISEPTIC GAUZE.

Frequent complaints come in from physicians that their orders for Linton Moist Gauze are filled by the druggist with Johnson's Gauze in pasteboard cartons. In a recent instance the dispenser sent word to the physician that "Linton Moist Gauze was only put up in cartons, the use of glass jars having been abandoned."

This is all wrong. It is emphatically stated in our lists and in all our literature that "Linton Moist Gauze is packed in glass jars only."

This is the original and sole method of packing Linton Moist Dressings, and is the only safe method of packing an aseptic gauze. We do put up a so-called "dry" gauze dressing. This is packed in paper board cartons. It is plainly labeled Johnson's Gauze. It is not Linton Moist Gauze.

Johnson's Gauze is made under our methods of aseptic cleanliness with all the care and precision possible, but it is not guaranteed to remain aseptic, as the nature of the container prevents this. The paper board cartons in which Johnson's Gauze are packed are the best that can be devised, as good as any in the market, but they are not perfect.

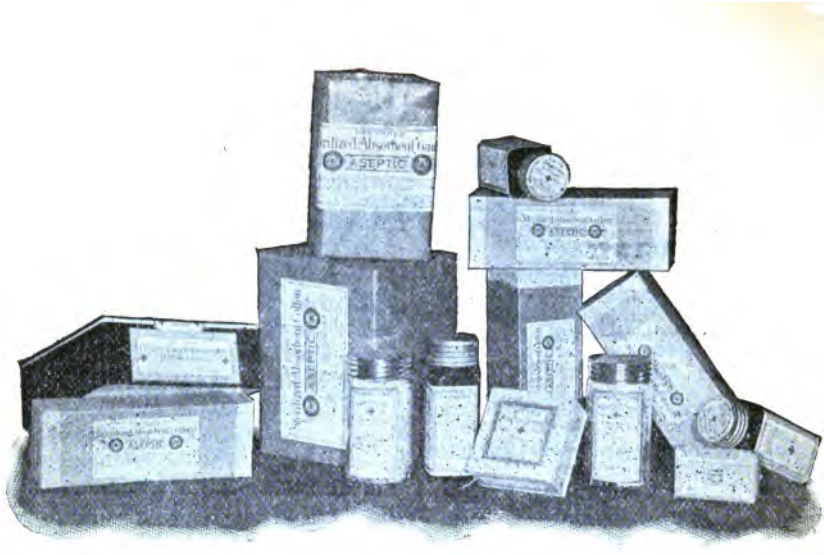
We therefore advise that under all circumstances dressings packed in glass containers are much more satisfactory.

Linton Moist Gauze in our glass containers we guarantee to remain sterile and aseptic until opened. Let everybody remember then "Linton Moist Gauze" is packed only in one and five yard glass jars.

"Johnson's Gauze" is a "dry" gauze, and is packed in one and five yard paper board cartons.

PHARMACAL MEETINGS, JUNE 1897.

Connecticut, June 15-16, New London.
Colorado, June 22-25.
Illinois, June 2 and 3, Champaign.
Indiana, June 15, Indianapolis.
Iowa, June 3, Waterloo, Chataqua.
Kentucky, June 16, Crittenden Springs.
Massachusetts, June 1-3, Plymouth.
Minnesota, June 16, Lake Minnetonka.
Missouri, June 8-12. Merimee Highlands.
Nebraska, June 7 and 9, Plattsmouth.
Ohio, June 3 to 12, Cleveland.
Pennsylvania, June 22-23, Delaware Water Gap.
Utah, June.



ASEPTIC ARMAMENTARIUM.

ASEPTIC ARMAMENTARIUM.

This collection of sterilized dressing materials contains articles that are absolutely necessary to any surgeon who in any way tries to carry out aseptic technique in his practice. The list was selected under the advice of several competent surgeons, and while it may be amplified to suit certain conditions, it is believed that it contains all that is necessary for any ordinary practitioner and everything in it is useful to a specialist. The outfit has enough material to last for a long time in office practice, and a sufficiency for several major operations. As every bit of material in the armamentarium is absolutely sterile and aseptic, it needs no resterilization or other preparation before using. The surgeon who is provided with this armament as far as the dressing is a factor can be absolutely certain of results.

The armamentarium can be supplied by any wholesale or retail druggist for $5.00. Druggists should not attempt to make up the outfit from their stock unless all their goods are put up in our latest hermetically sealed packages. Every article in the aseptic armamentarium is guaranteed to be absolutely sterile and aseptic, and will remain perfect if properly handled.

The contents are:

1 Two pounds Johnson's Sterilized Aseptic Cotton (in ¼ pounds).
2. One dozen 2 inch Linton Gauze Bandages (sterilized).
3. One 5 yard jar Linton Sterilized Aseptic Gauze.
4. Three yards Linton Bi-sterilized Iodoform Gauze in 1 yard jars.
5. One bottle Red Cross Catgut Aseptic Ligatures, containing one dozen ligatures 30 inches long.
6. One bottle Red Cross Aseptic Silk Ligatures, containing one dozen ligatures 30 inches long.
7. One box Bernays' Aseptic Sponges, containing 48 sponges.
8. One package Red Cross Antiseptic Soap.

KNIGHTS OF THE RED CROSS.

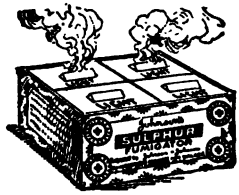
In ancient Greece, the makers of wound dressings rose to the rank of gods and goddesses. The operatives in our laboratories have not yet reached this eminence, although medical students who at times visit our laboratories seem to think some of them tally with Pope's description of those who prepared the dressings for Machean at the siege of Troy, and are "nymphs of form divine." It is, however, true that the zeal they manifest in their work should give them the title of "Knights and Ladies of the Red Cross," and we can speak of them with great satisfaction. Many of them have been with us since our beginning ten years ago. They are fully conversant with the changes and progress that has been made in the surgical art during this period. They are fully alive to the needs of the surgeon and the proper way to prepare material to meet this need. They have been schooled and drilled, day after day, in antisepsis and in asepsis. They know the need and value of surgical cleanliness, and the practice of aseptic technique makes up their daily life. More than this, they are familiar with the principles as well as the details of the work. They know why things are done as well as how to do them. Those to whom are assigned the immediate handling and packing of aseptic material are selected from those who have shown proficiency in other departments of the laboratory, and in addition have been passed

through a special course of training adapted to this branch of the work. This is a stated course of instruction in the form of demonstrations of the processes and explanation of the principles involved, to which those in attendance are given questions to be answered and experiments to perform. The scheme amounts to a college course in Asepsis with the use of text-books, reference books and daily training, the whole occupying several months.

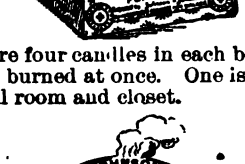
These operatives are at all times under the immediate supervision of graduate surgical nurses who are held responsible for the execution of every detail. The operatives are required to give the utmost care to their general personal cleanliness, to be cleanly in habits and practices. Before entering the aseptic operating room they change their street clothing, remove all jewelry, flowers, etc., and undergo a thorough disinfection of hands. Upon entering the room they don aseptic clothing and make a farther preparation of their hands. The work is carried out under stated systems and rules which are exacting to a minute degree, and to the credit of the operatives it must be said that their work is conscientiously done. We may justly claim that our systems of producing aseptic material are as perfect as the art can make them, and under our rules and methods dressings cannot fail of being sterile and aseptic. At the same time we are happy to say that our operatives in asepsis are faithful, enthusiastic, conscientious and thorough in the execution of their important office.

SULPHUR FUMIGATORS.

We make two kinds of Sulphur Fumigators. One is known as Johnson's Sulphur Fumigator, square. These are contained in a fire-proof box. The candles are to be burned in the box as it stands.



There are four candles in each box; one or all can be burned at once. One is sufficient for a small room and closet.



The other style is a round candle on a tin plate. This is a very handy way to burn a small quantity for destroying insects, etc.

With either kind, a lighted match touched to the conical point set them burning. They burn until the sulphur is consumed. No trouble, no muss, no worry.

Druggists shou.d push the sale of sulphur fumigators. They should recommend them for use in cellars, basements, outhouses, sleeping apartments, stables, etc., to disinfect and purify the atmosphere, destroys insects, bugs, fleas, lice, etc.

Johnson's Sulphur Fumigators should be used after

Scarlet Fever,	Typhus Fever
Erysipelas,	Membranous Croup,
Leprosy,	Diphtheria,
Cholera,	Dysentery,
Small Pox,	Puerperal Fever,
Grip,	Varioloid,
Yellow Fever,	Whooping Cough,
Measles,	Consumption,

and especially after all contagious diseases of animals.

After recovery or death from any infectious or contagious diseases, all articles worn by or that have come in contact with the patient, together with the room and its contents should be thoroughly disinfected with Johnson's Sulphur Fumigators.

CUSTOMERS SHOULD BE WARNED

against the use of Corrosive Sublimate Soap in metal basins, dishes, bath tubs, etc. Everybody is supposed to know that Corrosive Sublimate attacks metals and will corrode and destroy them. But many of them forget this fact, hence several complaints from customers who say that Johnson's Corrosive Sublimate Soap has destroyed the plating on their bath tubs.

Purchasers of Corrosive Sublimate Soap should be made to understand that they must use it in wooden, glass or earthenware vessels. They should be made to understand that Johnson's Corrosive Sublimate Soap contains in name and fact the corrosive chloride of mercury, which will attack all metals.

UNIVERSITY OF THE STATE OF NEW YORK.
Anson Judd Upson, *Chancellor*
William Croswell Doane, *Vice-Chancellor*
Melvil Dewey, *Secretary*
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ALBANY, N. Y., 14 May, 1897.

MESSRS. JOHNSON & JOHNSON,
New Brunswick, N. J.

Gentlemen:—

A copy of your "ASEPSIS SECUNDUM ARTEM" has come to us from another source. We notice in it a bibliography of your monographs, booklets, etc., that you offer to send to physicians. No doubt you will be willing to send them to the growing and well-patronized Medical section of this library. We shall be glad to receive any that you can supply, both of those now in print and your future publications. Very truly yours,

WALTER S. BISCOE.

There seems to be quite a demand for Johnsonian Literature. In our last monograph there is a fairly complete bibliography of our scientific publications, any of which not out of print will be sent to any Physician, Pharmacist or Medical Library who will take the trouble to write for them.

The following are of special and timely interest:

ASEPSIS SECUNDUM ARTEM.—The practical application of the art of Asepsis to the preparation of surgical dressings. Description of the methods by which aseptic dressings are prepared in Johnson's Aseptic laboratories. A description of laboratories, operatives, training, rules of government, bacteriological tests, etc. 25 half tone engravings. Illuminated cover.

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NOTES ON CATHETERS AND BOUGIES.—How Catheters are made. Suggestions on the keeping and care of Flexible Soft Gum Instruments. Methods of sterilization. Sizes, shapes, etc. Illustrated. 12 pages.

DON'T RIDE A WHEEL WITHOUT ONE.

When in the gentle spring and summer the fancy of the old and young man turns to the wheel, he needs a suspensory.

In fact, the advent of the bicycle has created a great demand for Suspensories. The ever true medical axiom "Every man should wear one" may be construed to mean "No man should ride a wheel without one."

A cycler may leave off his knickerbockers, leggings, sweater, coat or hat, but is never properly dressed unless he wears a Suspensory.

The sense of comfort and relief from a well-fitting Suspensory is indescribable.

The support for the testicle which such a bandage will give the protection of the organs from injury is invaluable. The prevention of chafing and irritation, squeezing and pinching are worth many times the trouble and cost.

We always recommend as the best Suspensory Bandage the Red Cross Diamond J style. This is made with a seamless sack; the elastic girdle allows a self-adjustment.

The bag is shaped to fit the scrotum. The thigh-straps are self-adjusting.

The mechanism of the Diamond J Bandage is faultless, giving an easy, natural and perfect support, besides being the best fitting and the most durable of any suspensory made. They are really a comfortable bandage to wear.

They are made in three styles, the retail price being:

No. 65. Ribbed Cotton Sack, elastic bands.....$1.00
No. 68. Ribbed Silk Sack, elastic bands..... 1.50
No. 70. Fancy Silk Sack, elastic bands..... 2.50

All the above are identical in construction except as to material.

Every Diamond J Suspensory is guaranteed to give satisfaction.

We are offering special discounts on Suspensory Bandages to the Drug Trade.

We have issued a handsome 8 page lithographed leaflet "Every man should wear one," which will be sent to any one on request. Dealers will be sent a supply with their orders.

"Men and women are doomed to constantly combat dirt, disease and the devil."—Dr. George C. Graff.

A BOOK WITH A MISSION.

"Prevention is better than cure and far cheaper."—John Locke.

JOHNSON & JOHNSON.
New Brunswick, N. J.
[Copyright 1896.

This is the title page of a booklet of 32 pages recently issued from our publication department. The following is the preface:

This little book has a mission to perform.

Its mission is to show that contagious and infectious diseases may be controlled, prevented and ultimately eradicated by the use of systematic means.

To suggest methods and means within the reach of everyone who may desire to attain this end.

Most manuals and circulars upon these topics (including those issued by health authorities) are too technical to be understood by those who most need their instruction. In many cases the methods suggested by such publications would require for their fulfilment the employment of sanitary experts.

The methods herein suggested for dealing with communicable diseases are the most simple, yet the most effective methods of isolation and disinfection. They can be effectively carried out under all conditions and circumstances. They have in many instances been directly contributed and sanctioned by the highest authorities in sanitation.

Copies of this booklet will be sent to any druggist to distribute among physicians, nurses, etc. One copy sent to anybody on request.

MEDICAL MEETINGS, JUNE 1897.

American Medical Association, Philadelphia, June 1, 2, 3 and 4.
Colorado State Medical Society, Denver, June 15.
Medical Society of Delaware, Rehoboth, June 8.
Indian Territory Medical Association, South McAlester, June 1 and 2.
Kentucky State Medical Society, Owensboro, June
Maine Medical Association, Portland, June 2, 3 and 4.
Massachusetts Medical Society, Boston, June 8 and 9.
Minnesota State Medical Society, Mankato, June 16, 17 and 18.
Medical Society of New Jersey, Atlantic City, June 22.
Medical Society of the State of North Carolina, Elizabeth City, June 8.
Oregon State Medical Society, Portland, June 8 and 9
Ontario Medical Association, Toronto, June 2 and 3.
Rhode Island Medical Society, Providence, June 3.
South Dakota State Medical Society, Mitchell, June 9.
The Medical Society of West Virginia, Charlestown, June

RED CROSS NOTES.

JOHNSON & JOHNSON LABORATORIES.

No. 3. NEW BRUNSWICK, N. J. JULY, 1897.

BOSTON MEDICAL LIBRARY

ANNOUNCEMENT.

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JOHNSON & JOHNSON,
New Brunswick, N. J.

QUALITY—PRICE.

In the reliability of a dressing applied to a wound is bound up the life of the patient and the reputation of the surgeon. The druggist who delivers to a surgeon a yard of gauze, a ligature or a sponge is responsible for the issue of life or death in the one and the professional standing of the other. It is evident that these cannot be measured in a money ratio, nor should they be subject to the market rates per pound or yard. Yet we sometimes receive overtures from prospective customers as occurred in a recent instance where it is stated "Quality, make or kind is no factor with me. I buy of whoever sells the cheapest." We had to decline this order, and in doing so we were reminded of the statement of a prominent surgeon who wrote that "where the gauge of success in the sale of surgical dressings is purely commercial, the requirements of surgery are matters of indifference and generally matters of ignorance.

In a recent pamphlet Johnson & Johnson state:

"From the beginning of our experience to the present time we have held in view one single purpose—the preparation of dressing materials that shall meet the requirements of and embrace the advances made in the art of surgery. While not presuming so much as to suggest to the physician or surgeon as to the kind or make of material he should use in wound dressing, we believe that disappointments and serious results will follow unless he demands and uses dressings prepared in a manner equal to the methods here outlined or 'according to the art of asepsis.'"

These words apply with double force to the druggist. The surgeon looks to him for material that will meet the highest requirement—Reliability. The pharmacist who fails to use discretion in purchasing surgical dressings, who supplies materials of an inferior grade, involves consequences that will be serious for his patrons and that will certainly cause him to lose both prestige and money.

THE LAW OF CLEANLINESS.

Dr. Kelly has said "Asepsis is an exalted degree of cleanliness."

The surgeon now looks at the whole matter of cleanliness at an utterly different angle of observation than that of any other onlooker and even that of his own observation as made a few years ago.

To the eye of the surgeon, the purest spotless linen is as "filthy rags," unclean and unfit to lay upon a wound, unless purified for his use. He does not judge by its looks, but by his knowledge of the effects of the unclean, death-breeding germs upon every unprepared surface. Dressings and instruments must be made aseptically clean and then kept from contamination so carefully that they must not touch anything but the prepared wound surface, and must be handled only by surgically clean hands. Hence the law of cleanliness applied to the prepared surgical dressing means that "whatever may be the material, and whatever may be the methods by which they are prepared, in order to meet the requirements of surgery, the fundamental principle governing their production, must provide that they shall be free from all micro-organisms."

NEW WOUND TREATMENT.

The Princess Louise recently opened a hospital in London for the especial treatment of ulcers abscesses, infected wounds and sores, by a new system. According to the statement of Dr. Stoker, the system consists of exposure of the affected parts to a mixture of oxygen gas and purified air. In applying this treatment the wound area is covered with a box-like apparatus, arranged so as to form a gas-tight chamber enclosing the wound.

Into this chamber the mixture of gases are passed from a gasometer. The actions produced are claimed to be

1. Direct stimulation without irritation.
2. Oxidation of the products of the infecting micro-organisms, especially those upon the surface of the ulcer.
3. Stimulation of the growth of staphylococci which outgrow the other forms of bacillus.

The method is the scientific application of the older open wound treatment, and was partially suggested by the practice of the Zulus who send their wounded for treatment into the pure air of the high mountains.

Pharmaceutical Meetings, July 1897.

Colorado, July , Manitou.
Maine, July 6, Portland.
Maryland, July 14, Ocean City.
North Dakota, July
South Dakota, July 4, Sioux Falls.
Tennessee, July 21, Nashville.
Virginia, July 20, Near Charlotteville.
Washington, July 2.
Texas, July
Rhode Island, July 14, Fields Point.
New York, July 13-17, Manhattan Beach.

CATHETERS AND BOUGIES.

A good trade in Catheters and Bougies is something that is highly satisfactory. It requires a small investment only; the profits range from 100 to 200 per cent. With the right kind of Catheters and Bougies there are no losses or risks by reason of deterioration of stock. The trade is one that lasts, grows of its own accord, and is one that brings both prestige and credit.

Much of the trade in this class of goods now passes by the druggist to the instrument dealer for the reason that few druggists carry a proper stock to fill the demand. Most of them do not rightly care for and display the goods they have on hand. Few of them give sufficient push or attention to win and hold the trade.

We have many customers whose trade in Catheters and Bougies has increased from a meager sum to very large figures, and this in spite of hard competition and other adverse conditions.

We helped some of them to get their trade. We are helping others in the same and even in a better way. We can help any druggist to good business that carries with it profits worth considering.

This is the way; the handsome show-case of solid oak, handsomely polished, shown on this page, has a top of plate glass and lettered. The drawer is fitted with compartments suited to the different sized instruments.

It makes an ornament for any drug store. It was designed to exhibit Kingstone Catheters and Bougies. The case is given free with a purchase of a one gross assortment of Kingstone Catheters and Bougies. The assortment may be selected to suit the dealer; in this we will aid him to select the best-selling kinds.

With this case we will send a supply of advertising scale cards and copies of 12-page monograph in colors entitled "Notes on Catheters and Bougies" All these we will furnish in quantity sufficient for the dealer to thoroughly reach physicians and consumers of these goods. This and other advertising matter which we will send will bear the dealer's imprint. The display, the advertising matter and such other aid and advice as we shall give the dealer will not fail of securing a profitable and lasting trade to those who will join with us in the matter.

The investment is exceedingly small. The Kingstone instruments are guaranteed against deterioration, so there are no risks.

It will cost nothing to write us about it. We will give the matter our best attention.

FADS AND CRANKS WANTED.

A leading drug journal recently treated editorially the whole practice of aseptic and antiseptic wound treatment as "a fad, practiced by cranks." We may excuse the editor's ignorance.

The pharmacist who honestly holds such a conception should abandon his calling or open his understanding.

The simple and seemingly endless details that make up an aseptic technique seem fussy to those who stand without, but go into any hospital clinic or operating room, witness one operation, compare the records of that institution last year with a similar record 20 years ago, and as you see how different is the whole aspect to-day, how life has been truly snatched from death, you will thank God for such fads and pray for more cranks to practice them upon suffering humanity.—KILMER.

—Robt. W. Johnson, President of the Johnson & Johnson corporation, is a member of the Board of Trustees of the New York Red Cross Society.

—Miss Elizabeth Washam, head nurse in Johnson & Johnson's aseptic dressing department, is a graduate of the Red Cross Hospital Training School.

—Mercuride Leaf. These are put up twenty-five in a box. One leaf to a pint of water gives a solution of bichloride of mercury 1-1000. Handier, safer and better than bi chloride tablets.

Trade price, $1.75 per dozen boxes.

—Styptic Leaves. These are a substitute for Styptic Cotton which has never been satisfactory. The leaves stop bleeding, form a blood clot, and keep the wound covered. Exceedingly handy for accidental cuts. Put up 25 leaves 2x3 in a box. A box will go farther than an ounce of styptic cotton. List price $1.75 per dozen boxes.

THE RED CROSS IN MINNESOTA.

L. G. Powers, the Commissioner of Labor in Minnesota, is extending the influence of the Red Cross to suffering humanity in a very practical way. He has had printed a simple system of suggestions as to what to do in cases of accident, which will be distributed in all the work shops and factories of the State.

He has also made arrangements to have lectures delivered in the principal cities of the State upon this subject.

An effort will also be made to have the Legislature take the matter up and make it compulsory to have an emergency chest on every railroad passenger train and in every work shop in Minnesota.

The following has been issued officially from the Labor Bureau of the State:

BUREAU OF LABOR. STATE OF MINNESOTA.

WHAT TO DO IN CASE OF ACCIDENTS.

I. Remove injured person to a quiet and airy room. If injuries allow no transportation leave person undisturbed until physician arrives.

II. Place wounded person in recumbent position, remove or loosen all tight clothing and footwear. Keep body mode ately warm and allow fresh air to enter the room.

III. Abstain from noisy, unnecessary talk and crowding around injured; give water if asked for, but do not give alcoholic stimulants except by direction of physician.

IV. Under no circumstances touch a wound with unclean hands or apply unclean linen, bandages or coverings.

APPLICATIONS.

For bleeding flesh wounds: Cover same with *Johnson's sterilized gauze.*

For raw, oozing flesh wounds: Cover with *Johnson's sterilized gauze* and bandage.

Hemorrhage of Artery. Very dangerous. Get physician quickly. Cover wound with *Johnson's sterilized gauze* and press firmly upon artery above cut. If bleeding does not stop, take a handkerchief, tie a hard knot in center and place same on artery above cut, both ends of the handkerchief tied together and twist loop, using a stick for this purpose, until the knot presses firmly upon artery. This method should be resorted to only in case the injured might bleed to death, as it is not without danger.

Fractures. Be careful flat broken bones do not grind together. Cover wound, if any, with *Johnson's sterilized gauze*, and have patient lie quiet until physician arrives.

Bleeding Bruises. Put injured limb in an elevated position, cover with *Johnson's dry sterilized gauze* and bandage.

Burns. Burns must not be disturbed. Cover with *Johnson's sterilized gauze* and apply linen soaked in equal parts of castor oil or linseed oil and lime water.

NOTICE.—Bandages, towels, gauze, etc., can be sterilized by boiling same for five minutes in clean water. *Johnson's sterilized (corrosive sublimate) gauze* can be bought in any drug store.

In every place where labor around machinery is employed, a sufficient supply of bandages, gauze and medicaments should be kept on hand.

L. G. POWERS,
Commissioner of Labor.

HOW IT IS DONE.

The handling of Gauze Dressings in Johnson & Johnson's laboratories is described in the January number of the *American Journal of Pharmacy* as follows:

The Gauze is first rendered absorbent and bleached and arrives at the ante-room adjoining the aseptic room to be made into dressings. The jars in which it will be packed, with their tops, fastenings, etc., are brought to the same point from a bath in hot soda solution. If the gauze is to be impregnated with antiseptics, it is done in this outer or ante-room. The gauze, the containers, labels and all things pertaining thereto next pass into the sterilizing chamber. This chamber forms a part of the dividing wall between the ante-room and the aseptic room.

The chambers are fitted with steam supply and escape connections, gauges for pressure and vacuum, safety valves, exhaust valves, etc. Cars of iron with trays carry the articles to be treated. Supply pipes controlled by valves admit live steam to the interior of the chamber. The actions involved in the operations within the chamber are:

(*a*) Preliminary warming of the materials to prevent condensation.

(*b*) Removal of air.

(*c*) Circulation of saturated steam unmixed with air under pressure through every fibre of the material, subjecting them to the highest possible action of this agent.

(*d*) Subsequent exhaustion of steam and substitution of heated air.

After the gauze passes into this chamber, the doors are closed and it becomes a hot-air chamber. The air is then exhausted to a vacuum of 10 or 12 pounds; saturated streaming steam is then let in; the temperature soon rises to possibly 240° F., and the pressure gauge indicates 5 or 10 pounds. The steam pipes are now closed; the vacuum pump is again started until the proper vacuum is obtained.

Again steam is turned on, and so on, in turn, currents of saturated steam follow each other through the vacuum for from one to two hours. Every part of the chamber is penetrated, every fibre is subjected to the action of this highest of bactericides. The most resistant form of germ life must be reached and destroyed. From the sterilizing chamber the gauze passes directly into the aseptic room. In this room all persons, tables and apparatus having been previously prepared, the dressings are cut, folded and packed in the jars, the covers laid on loosely.

(A large portion of this work is done by apparatus, to avoid touching with the hands.)

This work is rapidly performed, and the filled jars returned to the sterilizing chambers for a re-sterilization. This final sterilization effectually secures absolute safety against the remote possibility of infection by handling. After this final sterilization the jar seals are locked. For dressings packed in jars, this process is one of hermetic sealing, a partial vacuum having been formed within the jars during their heating and cooling. The finished dressings now pass on to be labeled, packed in cartons and made ready for shipment.

OUR BUSINESS MANAGER

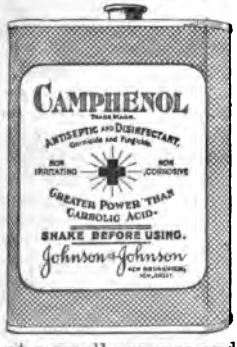
Mr. Phinny, when he speaks, gives out words that are worthy of consideration. In a recent conversation he said:

"Live druggists are now doing a good thing in pushing the sale of Suspensory Bandages. The wonderful interest taken in cycling and athletic sports has created a big demand for this kind of goods, and the druggist has only to let his people know that he keeps the right kind of articles to win a good trade. The trade in them belongs to the druggist. No one ever thinks of going to the dry goods store or millinery shop for a suspensory. Therefore the druggist is wise who works the trade for all it is worth. The profits are very large, the cheapest suspensory made is never sold under 25 cents and costs the dealer 10 cents. Our best grade Diamond J bandage sells quickly for $1.50. It costs the dealer about 56 cents.

Our fancy silk bandage, the handsomest thing ever made will bring $2.50, and on this deal there is a profit of $1.50 to the retailer. The manufacture of Suspensory Bandages is one of our largest and most important branches. We have made many improvements, and our better grades are the finest goods on the market. The Zonas and Diamond J Suspensories are the finest that can be made. We put on all our bandages the most improved adjustable attachments. They are made to fit the person, to be comfortable and to wear well. The finest quality and best wearing material is used in making up these bandages. They are all put in handsome flat hinged boxes. They look to be worth more than the price charged for them, and the customer is always satisfied to pay a good price for Red Cross Bandages on sight alone. We have a handsome booklet, lithographed in colors, that tells the uses and the value of Bandages in a convincing way. Of these there is sent a supply to any dealer with his name and address on, who will order as little as $10.00 worth of bandages. An order placed with the jobber for an assortment of Red Cross Bandages will be delivered at 25 per cent. discount from the list price. The jobber will inform us of the purchase, and we will send the advertising matter.

"There is big money in this deal for the retail dealer."

CAMPHENOL.



A combination of camphor, cresols and phenols in soluble form giving the highest efficiency to these bodies, which in this form is the most effective germicide known.

Camphenol is probably the only disinfectant that can be used everywhere and under all conditions.

Camphenol insures thorough disinfection at a small expense and with little trouble.

Camphenol is put up in cans (20 oz.) Each can when diluted, will furnish over five gallons of disinfecting solution. This size is sold at retail for 50 cents.

The small-sized package of Camphenol holds 8 ounces. Each bottle when diluted will furnish over two gallons of disinfecting solution. This size is sold at retail for 25 cts.

The trade prices for Camphenol are: cans $4.80 per dozen; bottles, $2.00 per dozen.

"Book With a Mission" gives full instructions and suggestions about the use of Camphenol.

Druggists should see that every physician has a copy.

BIBLIOGRAPHY.

In a recent pamphlet "Asepsis Secundum Artem" is given a list of about fifty monographs, booklets, etc., of a scientific nature, which have been issued from the laboratory of Johnson & Johnson for circulation among the medical profession. The combined circulation of these issues has reached several million copies. The list does not include those of a commercial nature, such as price lists, circulars, etc.

The ultimate reason for issuing these pamphlets has been of course that of advertising, but many of them contained very little that was purely advertising matter. They were, in fact, contributions to medical science. Their use as a medium of placing our products before the medical profession was incidental. From their recipients have come very pleasing tributes as to the usefulness to the profession.

These publications have treated of surgical dressings, surgical appliances, drugs, pharmacy and therapeutics, at the time of issue in many instances their subject matter could not be found in any other publication. Many of them were so complete in their way that they have become standards for reference and study. Thus a constant demand is made by teachers and scholars for copies of certain issues which have become exhausted

Of the recent issues the following will be sent free on request:

ASEPSIS SECUNDUM ARTEM.—The practical application of the art of Asepsis to the preparation of surgical dressings. Description of the methods by which aseptic dressings are prepared in Johnson's Aseptic laboratories. A description of laboratories, operatives, training, rules of government, bacteriological tests, etc. 25 half tone engravings. Illuminated cover.

MODERN SURGICAL DRESSINGS.—Address by Fred B. Kilmer before the Philadelphia Pharmaceutical Meeting upon the science and practice involved in preparing Surgical Dressings. Reprint from *American Journal of Pharmacy*. 16 pages.

ASEPTIC DRESSINGS.—Rules and suggestions. Handbook used by operatives and methods of preparing Surgical Dressings in Johnson & Johnson's Aseptic Laboratories. 12 pages.

WHEN AND WHERE TO BLISTER.—Index of the therapy of Blistering, diagrams of proper points for vesication. Dressing and care of Blisters. Booklet, 24 pages.

A BOOK WITH A MISSION.—A book crowded with information about contagious diseases and disinfection. The suggestions are easy, clear, practical and useful. 32 pages.

RED CROSS CARD.—A card to hang in the sick room giving practical directions as to ventilation, disinfection, etc.

NOTES ON CATHETERS AND BOUGIES.—How Catheters are made. Suggestions on the keeping and care of Flexible Soft Gum Instruments. Methods of sterilization. Sizes, shapes, etc. Illustrated. 12 pages.

RED CROSS NOTES.

JOHNSON & JOHNSON LABORATORIES.

No. 4. NEW BRUNSWICK, N. J. AUGUST, 1897.

ANNOUNCEMENT.

These leaflets are issued monthly supplementary to our monographs, booklets and other publications.

The issues are sent without cost to such persons as we may be able to reach through the regular channels of trade and correspondence.

All persons who, during the month of issue, purchase a bill of goods, have any correspondence with us, or visit our laboratory, will receive a copy.

Those who desire to receive the RED CROSS NOTES regularly must send a request to this effect.

JOHNSON & JOHNSON,
New Brunswick, N. J.

BEWARE OF PROSPERITY.

There is in the history of every store, large or small, a period when it begins to make money. To that period nothing so well applies as the well-known lines of Shakespeare:

There is a tide in the affairs of men which,
taken at the flood,
Leads on to fortune; omitted, all the voyage
of their lives
Is cast in shallow and in miseries.

Beware of that tide! In most cases close and economic management have led the store to prosperity through a course of hardships and privations. At last the turning point comes. The strain on the proprietor relaxes, and he surveys his accomplishment from a lofty pedestal of gratification and pride. He begins to dream of expansion and conquest of new trade. He enlarges his store, increases his force, adds new fixtures and in a general way creates new channels of expense. In a short time he learns that the trim little store he lead to prosperity over so many shoals. was just the right hing for this peculiar field. It absorbed just enough of the revenue to leave him a margin, smaller or greater, and was just the right thing in the right place. The new store eats up all his revenue, and much more, too; and he cannot go back to the old model now, because he has passed the golden mile-stone; he has not taken the tide at the flood, and is hopelessly drifting to destruction amid the shallows of his short-sighted policy. Hence, when you are making money, don't loose your head. Keep the store steadily in the channel in which it became prosperous, and be careful how you complicate its affairs with new sources of expenditure. Make legitimate improvements, but keep your expenses within safe limits.—*Selected.*

THE RED CROSS IN GREECE.

A representative of the United States Sanitary Commission, at Athens, Greece, reports that there are at least 20,000 wretched ill and starving Cretans in Greece. Besides this, there are those who were wounded in battle during the late war. Thessalian refugees making a total of over 300,000 people needing food and help.

He compliments the work of the American Red Cross Society under Miss Clara Barton, in their efforts to relieve distress. He reports that the sanitary service of the Grecian Army ond the Greek Red Cross to be very deficient. Before the war, the Greek Red Cross Society had established five hospitals. During the progrtes of the hostilities, the Turkish Army captured two of these hospitals, and the Greeks were thus deprived of a vast amount of surgical supplies.

At the time of the war good work was done in improvised hospitals established on board steam ships, in which the wounded from the battle fields were cared for and transferred to different ports where regular hospitals exist.

He estimates the number of Greeks wounded in the one months' fighting at 5,000. In Athens the Red Cross flag now floats over seven large hospitals, as well as several school buildings, and private residences which have been fitted up for hospital use.

There is an English Red Cross Hospital at Pyrias and one at Khalcis. There is also a German Red Cross Hospital on the sea shore at Aga-Marina.

The physicians and nurses sent out by the European Red Cross Societies have taken charge of the various hospitals and are performing efficient service. It was found that the wounds produced in the battles between the Turks and Greeks mainly resulted from rifle bullets and fragments of shells. Only a few cases were noted that could be attributed to the use of side arms.

PHARMACAL MEETINGS, AUGUST.

AMERICAN PHARMACEUTICAL ASSOCIATION, Lake Minnetonka, Minnesota, Aug. 23 to Sept. 6.
Minnesota, Lake Minnetonka, Aug. 23.
North Dakota, Fargo, Aug. 11.
Wisconsin, Green Bay, Aug. 10 to 12.

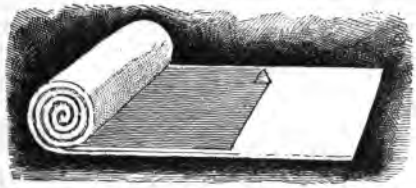
MEDICAL MEETINGS, AUGUST.

American Association of Obstetricians and Gynecologists, Niagara Falls, N. Y., Aug. 17, 18, 19, 20.
Canadian Medical Association, Montreal, Canada, August, 1897.
Medical Society of Virginia, Hot Springs, Aug. 31.

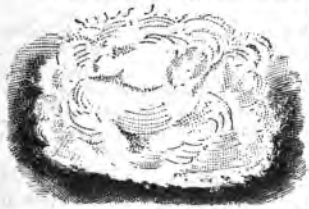
COTTON IN WOUND DRESSING.

The use of cotton as a wound dressing probably dates back to very ancient times.

Absorbent cotton as a wound dressing material came into general use with Listerism. So commonplace is its use at present that even these simple facts are forgotten. It is worth while to remember that when absorbent cotton was first introduced, it was supplied by the dealers in the form of wads or masses of the most irregular and inconvenient shape. It is safe to say that almost as important as the introduction of absorbent cotton was the invention of a method of putting it up in a way that it could be conveniently used by the surgeon, viz. the rolling of the cotton into sheets with tissue paper between each layer. This simple device has been of greatest value in making possible and popularizing the use of absorbent cotton.



It was devised by Johnson & Johnson, and the first cotton placed on the market rolled in layers with tissue paper between the layers was that of their make. This was ten years ago or more. It was not patented and its use was given to the surgical profession. Naturally, every manufacturer immediately rolled his cotton with tissue. In fact, it could not be otherwise.



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A far greater improvement in the manner of preparing absorbent cotton for surgical use was the production of Lintine. This is absorbent cotton felted into thin sheets. While it is still absorbent cotton it has greatly improved properties. It is many times more absorbent than loose cotton. It can be cut or torn like a piece of cloth. It answers in many cases as a bandage material. It is superior to any other material for pads, tampons, sponges, napkins and coverings. In fact, it makes a complete dressing material for the majority of cases. It is also advantageous over absorbent cotton in that there are no loose fibres to fly about or to be left as an irritant to the wound surface.

A pound of Lintine has 6,500 inches of surface. This is about double that of either cotton and lint. It is asserted by many physicians who have fully tested the matter, that one pound of lintine more than equals two pounds of cotton. Lintine is sold at about the same price of good absorbent cotton. Many large hospitals are using thousands of pounds of this material yearly.

Lintine is also the invention of Johnson & Johnson, and they will be glad to send a sample sufficient for thorough trial to any surgeon or hospital who will write for it.

"HOW TO BECOME A TRAINED NURSE."

By Miss Jane Hodson, Ex-Matron House of Relief, N. Y. (Branch N. Y. Hospital) Graduate N. Y Hospital Training School. (Ready about Aug. 1.) William Abbatt, Publisher, 31 Nassau St., New York. P. O. Box 2488.

This is a book containing just what a would-be nurse wants to know, giving detailed information of every training school in the United States and Canada. These are illustrated by photo-engravings of the leading hospitals, operating rooms, wards, etc. The frontispiece has a portrait of Miss Nightingale. There will be 18 chapters by as many authorities, each one an expert in her line, the subjects being as follows:

What it is to be a Nurse, by Miss Frances Eaton Pope. Miss Nightingale's definition of Nursing. Application for Admission. The Probationary Term, the Training Term, by Miss Anna A. Hintze. Graduation and "First Case," by Miss Mary A. Snively. Private Practice, by Miss Mary Samuel. Hospital Employment, by Miss Marion E. Smith. Private Sanitarium Employment, by Miss Anna Alston. District Nursing, by Miss Lillian D. Wald. Obstetric Nursing, by Miss Emma J. Keith. Nursing the Insane, by Miss Emily J. MacDonnell. Massage, by Miss Elizabeth D. Holt. Male Nurses, by Mrs. Ada S. Willard. Taking Notes—"Charting," by Miss Anna L. R. Mines. Uniforms, Medals, Diplomas, etc., by the Editor. Some Eminent Nurses: Alice Fisher, by Mrs. Joseph R. Hawley: "Sister Dora," by Miss Josephine Hill; Florence Nightingale and Agnes Jones, by the Editor. A Chapter for Superintendents and Matrons, by Mrs. Anna M. Lawson. List of Training Schools in the United States and Canada, with particulars. Minor Matters: 1. List of books on Nursing, etc.; 2. Specimen pages from a District Nurse's book of cases; 3. Specimen pages from a Hospital Chart.

ABSORBENT POWER.

Romeberg gives the absorbent potency of various materials used in dressings as follows:

Ten grammes of material saturated with water to its maximum capacity weighed:

	gms.
1. Cotton deolated (deprived of oil and wax by solvents)	250.
2. Absorbent cotton	230
3. Wood wool	106
4. Absorbent gauze	96
5. Bog moss	82
6. Sawdust, (poplar wood)	73
7. Jute	70
8. Sawdust, (pine wood)	53
9. Coal ashes	21

—(*Archiv für klinische Chirurgie, 1884, Bd. 30.*)

—Suspensory bandages may be cleaned by washing in benzine, afterward in ammonia water and soap (or household ammonia). Dry in air or gentle heat, not in the sun. Another way is to wash them in 95 per cent. alcohol, drying in the air.

ASEPSIS SECUNDUM ARTEM.

This book gives primarily the methods under which surgical dressings are prepared in our laboratories. It discusses in the opening pages the progress in surgical dressings from the era of antisepsis to the aseptic practices of the present time.

This is followed by a description of the aseptic laboratories of Johnson & Johnson. Certain pages from the book of rules governing the laboratory are photographed in order to show the working methods.

The processes of sterilization, handling, packing, hermetic sealing and bi-sterilization are given in detail and illustrated by photographic reproductions.

The method of training operatives, course of instruction and rules for personal cleanliness, hand disinfection, etc , are also given.

Following these are the processes for preparing antiseptic ligatures, the tests used in the bacteriological laboratories to prove the effectiveness of the sterilization, the methods of preparing Linton Moist Dressings, Bernay's Sponges, bi-sterilized bandages, cotton, Pryor's Gauze, etc.

There is also a list of the monographs, booklets, etc., of a scientific nature which have been issued from these laboratories for circulation among physicians and pharmacists.

MERCURIDE LEAVES.

These leaves have already won their way to a decided success. They are simply a leaf or sheet of compressed cotton, two by three inches, saturated with the mercuric salts in such a way and proportion that one leaf thrown into a pint of water will at once give a solution of Bi-chleride of Mercury one to one thousand.

By cutting the leaf, or by increasing or decreasing the quantity of water, a solution of any required strength can readily be prepared.

A more prominent feature however, is the safety in using Mercuride Leaves. Very lamentable accidents have occurred for mistaking the highly poisonous tablet of Bichloride of Mercury for a harmless lozenge. No mistake can occur with the Mercuride Leaves. No one would attempt to swallow them. Besides this it is plainly printed on each leaf teeir nature and strength together, the word "poison" occuring in large letters. Mercuride Leaves are convenient to carry. They are very convenient to use. The salts are thoroughly distributed and are quickly made into solutions.

The trade price of the Mercuride Leaves is $1.50 per dozen boxes, each box contain-24 leaves.

A sample of Mercuride Leaves for trial may be obtained on request by any druggist or physician.

WHY DO PLASTERS SPOIL?

The following to the above question is taken from an article contributed by Mr. R. W. Johnson, to "Belladonna Illustrated." It is reproduced here by request, the monograph itself being out of print.

One reason why india rubber plasters change is because they are made of india rubber India rubber, even if cured by the best known method, is very liable to change. Plasters are made of uncured, or raw rubber, made plastic; in other words carried very near a point of self destruction. Several conditions hasten decay, such as frequent changes of temperature, or continued heat above 100 degrees. Warm, moist temperature will not only affect the rubber but may start mould in the drugs used. A great element to cause change is light. The heat, the chemical and the light rays of the sun all act injuriously on raw rubber. The direct rays of the sun will start decomposition in a few seconds; in an hour's sunlight a plaster is hopelessly ruined. Reflected light acts in the same manner, but less energetically. Oxygen is destructive to rubber and alkaloids, such as those of belladonna; in the form of ozone it is very energetic. Air, especially when its conditions are changeable, aids decomposition. Many things combine to produce change in a plaster made with a rubber base, resulting in the breaking up of rubber, loss of elasticity, formation of new compounds, all more or less ruinous to the plaster. All the factors that cause change in plasters are not under the control of the maker. Plasters are often seen lying open on the counters, in windows and under skylights, in utter disregard of the factors here named, and which the plaster maker has labored to avoid.

Belladonna plasters are exempt from some of the difficulties which surround other rubber plasters. Properly made Belladonna extracts acts in a measure as an enveloping preservative surrounding india rubber particles. Alcoholic extract of belladonna root will not mould as easily as the extract of the leaves. The boracic acid of the gums in the Johnson & Johnson formula all aid in staying change. This formula is the result of practical experience with every known base and method of making plasters. They should not change in two years. Specimens are in existence fifteen years old.

In view of the nature of an india rubber plaster, and the ease with which fresh stocks may be obtained, it would seem advisable that consumers, retail dealers and physicians should not keep them long. Slow selling plasters and kinds not frequently demanded should be obtained only as needed. Not more than a six months' supply of belladonna plasters should be kept in stock.

RAILWAY HOSPITAL CAR.

In Belgium there has been introduced a system of railroad hospital cars. They are used in serious disasters, for transporting the injured to the nearest regular hospital; also for transporting invalids to health resorts. The interior is divided into a main compartment, a corridor on one side and two hall rooms at the end. The largest compartment is the hospital proper; it contains twenty-four isolated beds hung upon powerful springs. The corridor on the outside of the hospital chamber leads to the linen closet and the doctor's department. In the latter is a large cupboard. The upper portion is used for the drugs; the lower one is divided into two smaller compartments, one serving as a case for surgical instruments, the other as a receptacle for the doctor's folding bed. Various trap doors in the floor, when opened, disclose to view an ice chest, a compartment for the disinfection of soiled linen and a provision cellar. If necessary, a portion of the hospital chamber may be transformed into an operating room for urgent cases.

CARE OF CATHETERS AND BOUGIES.

The following taken from NOTES ON CATHETERS AND BOUGIES, issued by Johnson & Johnson, contains hints of value to both dealers and users of these instruments.

Catheters and bougies shonld be kept at full length and never coiled. They should not be thrown about loose in drawers or closets with other goods to be covered with dust and dirt, nor allowed to come in contact with corrosive fumes or liquids that would attack their polished surface.

Some makes of these instruments soften and stick together in warm damp weather. It is necessary in such cases to dust with a powder, such as soapstone or lycopodium.

The Kingstone instruments never need powdering to prevent them from sticking together. Rubbing with a silk cloth or chamois will restore their lustre when tarnished.

The Kingstone Catheters and Bougies are carefully made and present an elastic, satin-smooth surface, highly polished throughout. With reasonable care they will retain this perfect condition for many years. When held in stock before sale or use, they should always be kept in their original container.

(Small lots are sent in compartment boxes, each instrument being separate from the other. A handsome show case with metal compartments is furnished the buyer, if gross lots, without charge.)

Afrer use these instruments should be thoroughly cleansed. The following methods for cleansing are suggested from practical experience:

After use, wash once in warm or hot water. A syringe with a small point may be used to force water through the tube and remove clots of blood or pus. if desired, an antiseptic solution may be used; such solution should, however, be rinsed off.

Kingstone instruments, having a smooth surface throughout, are easily cleaned. They may be dipped in boiling water, if necessary. After cleansing they should be wiped and thoroughly dried. To dry, hang over a stove or heater, but do not lay in direct contact with a fire or hot metal. When dry, polish with a piece of silk or chamois.

ASEPSIS SECUNDUM ARTEM.

The above is the title of a book recently issued by Johnson & Johnson, New Brunswick, N. J., and its size is 6 1-2x9 1-2 inches, 24 pages. The little work is intended for distribution to the medical and pharmaceutical professions. Its object is to show how modern surgical dressings are made under a practical application of the latest development of modern surgery, viz: the art of asepsis. It gives descriptions and illustrations of the laboratories and processes of the publishers, and suggestions to both physician and pharmacist for the proper preservation and handling of surgical dressings. Every pharmacist who wishes to best serve his medical friends and strengthen his position as a reliable source of supply for such goods is invited to send r this book.—*New England Druggist.*

THE NEWER SURGICAL ANTISEPTICS.

It is said that with the discovery of every new species of bacteria, there is born a new chemical calculated for its destruction. It might also be said in truth that for every species of bacteria there is a score of antiseptics which have been brought to the notice of the profession within the last year or two. Of many of them it may be said that they were still born. Some of them attain a little prominence only to be quickly relegated to obscurity.

It is worthy of note that none of these have been found of sufficient value to warrant the manufacturers of surgical dressings in placing them upon the market in the form of an antiseptic cotton or gauze. These lists will be continued from time to time. Lack of space precludes more than a mere mention of the name in each case. Further information will be given upon request by mail.

Acetanilid.

Acetonoresorcin, a combination of resorcin and acetone.

Acid Picric (Tri-Nitro Phenol).

Actol (Silver Lactate). The citrate salt is known as Itrol.

Adhaesol, an antiseptic varnish.

Airol (Bismuth oxy-iodo-gallate).

Aluminum acetate.

Aluminum aceto-tartrate.

Aluminum boro-tannate.

Aluminum chloride.

Aluminum sulpho-carbolate (sozal).

Alumnol, synonym *Beta-Naphthol-disulphonate of aluminum.*

Aminol.

Amylocarbol, a mixture of phenol-green soap and alcohol.

Anethol, synonyms *Para-allyl-phenyl-methyl ether, anise camphor.*

Anisic acid, synonyms *paramethoxy, benzoic acid.*

Annadalin, synonyms *di-thymol, tri-iodide.*

Antibacillin (proprietary).

Antinonnin, a preparation of potassium cresolate.

Antinosin, a sodium salt of nosophen.

Antipyrine.

Antipyrine-salol, mixture of salol and antipyrine.

Antisepsine, synonyms *asepsis-Para Brom-acetanilid.*

Antiseptin, a mixture of zinc sulphate, thymol and boric acid.

Antiseptol, synonyms *antiseptolum, chinchonin herapathit, chinchonin iodosulphate.*

Argentamin (silver phosphate in ethylendianine).

Argonin, a compound of silver casein and an alkali.

Aristol, synonyms *amidalin, bi-iodi-dithymol, dithymol-iodide.*

Aseptic acid, a compound of boric acid, hydrogen peroxide and salicylic acid.

Aseptol, synonyms *acid sozolicum, sozolic acid, ortho-phenol*, sulphonic acid, *ortho-sulpho, carbonic acid.*

Athanon, (proprietary).

(To be continued.)

Merchant's Excursion. Special Edition.

RED CROSS NOTES.

JOHNSON & JOHNSON LABORATORIES.

No. 5. NEW BRUNSWICK, N. J. AUG.–SEPT. 1897.

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JOHNSON & JOHNSON,
New Brunswick, N. J.

OUR SPECIAL EDITION.

ON our last page will be found a summary of the plans of the Merchants' Association, which proposes to give to merchants and buyers the low rates of a fare and one-third for round trip from any point outside of New York. No doubt a number of wholesale and retail druggists are looking forward with pleasureable anticipation to this trip, and very many others would also be delighted if they but knew the simple conditions. We therefore issue this special Merchants' Association edition of RED CROSS NOTES for two reasons: First, to give information to those who want it; and secondly, to extend a cordial invitation to all wholesale and retail druggists, their families and their employees, to visit our New York office and make themselves thoroughly at home there. Should they desire to visit our factory at New Brunswick, N. J., we will gladly entertain them and show them through the entire mammoth establishment. Free transportation between New York and New Brunswick (a short ride of an hour) will of course be provided. Come and see us, either in our office at 92 William street, New York City, or our factory at New Brunswick, and we will make things pleasant for you.

"Through our wide open gates
None come too early;
None return too late."

OUR LABORATORIES.

He that is simple talketh of himself;
He that is wise
Thinketh well of his own doings
But saveth nothing.
—*Ancient Proverb.*

In other words, the least egotistical man is the one who is able to best conceal his own egotism. We are doubly unfortunate: we naturally think well of what we have done, and the necessities of trade compel us to continually point to our Laboratories in terms of estatic pride at so much per agate line. This article, solely about ourselves and the things accomplished by us, is therefore full of self praise.

While we admit that there are other stones of smaller size and importance on the beach of popular approval, it has been told us that the rock on which our house is founded, viz., Experience—is larger, handsomer, and can be seen further out to sea than all others.

Our Laboratories are located in the ancient city of New Brunswick, New Jersey, a city with historical associations, with old-time residences, collegiate and theological institutions, giving it an honorable and enviable position. But it is the commercial and industrial life of to day that now dominates the pleasant city on the banks of the Raritan and gives it preëminence.

Manufactories are there of all kinds, but among them all the establishment of Johnson & Johnson holds a unique and notable position. It is only an hour's ride from New York to New Brunswick by the Pennsylvania railroad, and as you cross the Raritan River just before reaching the city, you can see the principal buildings of the concern off to the right. They are admirably located on the banks of the river, within sight of and three minute's walk from the railroad station. A canal and raceway runs through the property, and with the river in the rear, some of the buildings are almost entirely surrounded by water, while all of them have the advantage of pure air and freedom from dust that is so essential to the cleanly manufacture of surgical appliances and pharmaceutical preparations. Our entire plant occupies nearly five acres of ground, three acres of which is floor space. The buildings—23 in all (if made up into one after the manner of modern tall buildings) would produce a skyscraper of thirty-four stories; if the chim-

eys were placed on top of this, from the round to their peak would be nearly a housand feet. It is an enormous plant to e devoted to the preparation of a limited ne of surgical material. Its rapid growth such a proportion is marvelous when it considered that ten years ago the ground covers was a blank space. The develop-ent of these laboratories affords an illus-ration of the great strides that have been ade in our day in the practical application f science. It is especially a forcible evi-ence of the rapid evolution of medicine, nd exhibits to a high degree of perfection hat has been attained in the technical roduction of surgical material.

The Laboratory buildings were all built nd adapted to the purpose in view—the aking of medicated plasters and dressings or wounds. There are rooms there in hich the work done seems more along the ne of pure science than of a manufactur-ng establishment. There are Pharmacal aboratories, Chemical Laboratories, Ex-erimental Laboratories, Bacteriological aboratories. There are rooms where no acteria ever enter, rooms in which no ateria could live. There are antiseptic coms, disinfecting rooms, aseptic rooms.

The Laboratories are filled with a bat-alion of trained operatives who, if they now anything well, understand most thor-ughly the principles of asepsis and anti-epsis, and practice them in the making of he some 300 articles comprised in our list.

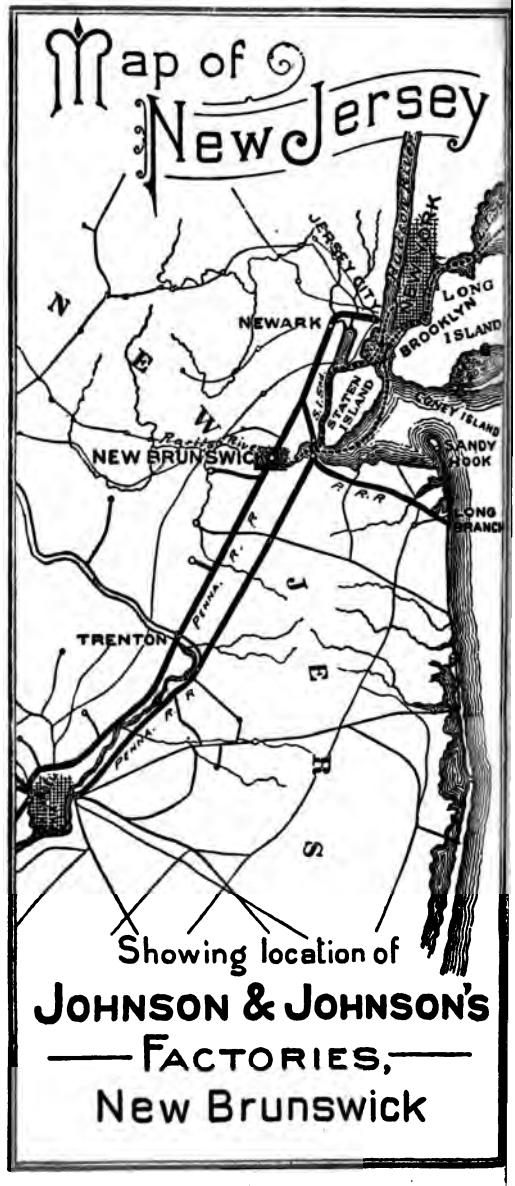
These buildings are filled with machinery nd apparatus that is ingenious and in ome respects wonderful. While this article s being written there is in course of rection enough new machinery and new pparatus to fill ten freight cars. There re pieces of machinery here that seemingly f their own volition, know more about laster making than "ye ancient apothe-ary" ever did.

These machines will grind, mix, spread, erforate, put on the face and back cloths of nough porous plasters in a day to cover wo miles of surface. It takes 14.000 acres f cotton plants in the Sunny South to upply the demands of the cotton machin-ry. There are machines that produce nough surgical gauze to wrap a yard round every man, woman and child in the States of Wyoming, Vermont, Washing-on, Utah, North Dakota, Nevada, Idaho, Arizona, Colorado, Connecticut, Florida Maine and Texas, or thirteen states in all.

There are other machines and apparatus hat apparently can do everything but hink.

We are honest in our belief that this or-anization in its totality is the largest in s line. We know there will be found here ooms, systems and buildings, the only ones f their kinds in the world. Visitors use the expression, "It is the cleanest place on earth." The products of these Laboratories fly that emblem of healing, the Red Cross. Thousands of physi cians and millions of their patients speak in strong est tones as to how well they fulfil their mission.

We started out to write an egotistical articl about our Laboratories; we have kept our word and yet we believe that the druggist who wil accept our invitation and visits them will exclaim "The half has not been told me."



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EXCURSION FOR MERCHANT BUYERS.

Generally the retail druggist has to pay for everything he gets. If a gift is offered to him, it is either an Indian present or one that has a catch of some sort attached to it. Just now, however, thanks to the Merchants' Association, the druggist, his clerks and his family have a chance to visit New York, Philadelphia or Baltimore and return home at a cost not to exceed a fare and one third. He is not under obligations to do anything, pay any fees or dues—all he has to do is just to come on and have a good time. If he buys anything, whether large or small, the Merchants' Association will be happy; if he simply looks over the market, he will receive the same welcome.

The Merchants' Association of New York includes about 500 of the leading commercial houses of New York City. It is a public spirited body, existing for the benefit of no single person, corporation or clique. Its officers serve without pay and the membership roll is a roll of honor. The people composing it believe that New York is the largest and broadest market in the world and the fountain head of goods and ideas for this continent. Thinking this way, the Association is making heroic efforts to induce merchants rrom all parts of the country to come to New York at least once a year. Their plan is this:

Any merchant, his family and his employees living outside of New York City, who will apply for admission to the Merchants' Association of New York as non resident members (free of dues, charges or liabilities of any kind) can travel to New York City and return at the rate of one and one-third fare for the round trip.

There are a number of different dates which have been arranged for August and September. These will be made known on application to the Merchants' Association, New York Life Building, New York City. You can send in your request for membership before going, or you can wait until you arrive at New York and then apply. Besides the reduced fare, you will be entitled to all the practical advantages of the organization, including the use of the Association rooms, when in New York, for offices, mail address, reading and writing rooms, information bureau, etc., entirely without charge. Although we have no authority for this statement, it is probable that many hotels will make reduced rates for the Association members and the amusement houses will make especial efforts to cater to them. Members who wish to, can stop over for a limited time at either Baltimore or Philadelphia. The Merchants' Association privileges allow for a thirty days' stay. Only merchants doing regular mercantile business are eligible to non-resident membership. Such members can bring with them their buyers or clerks and any members of their family, but none others can be granted the certificate entitling them to the reduced return ticket.

All druggists who can do so should by all means take advantage of this unparalleled opportunity to see New York and vicinity. They should come to look over the market and see what is going on even if they don't want to buy anything. It will do them good. Let them take a holiday from business, bring their wives along, have a good time, and on their return the world will seem larger and brighter than it used to. If any druggist intends coming to New York this fall, or later, he should send his name and address to the secretary of the Merchants' Association, New York Life Building, New York City, stating his preference for time of starting, as the excursion dates from different sections will be settled according to the wishes of the majority of the members in his neighborhood.

COME AND SEE US.

To the druggists of America, to the patient, skillful men in whose hands are the issues of life and death; who by their faithfulness as purveyors of medicinal agents have made possible the universal application of the principles and discoveries of modern medicine; who have accorded our products their confidence and recognition and most generous support—We, Johnson & Johnson, in order to promote professional confidence, strengthen friendships, and to push forward the interests of science, invite you to visit our Laboratories: and in advance we give you

"A Hundred Thousand Welcomes."

RED CROSS NOTES.

JOHNSON & JOHNSON LABORATORIES.

No. 6. NEW BRUNSWICK, N. J. SEPT. 1897.

ANNOUNCEMENT.

These leaflets are issued monthly, supplementary to our monographs, booklets and other publications.

The issues are sent without cost to such persons as we may be able to reach through the regular channels of trade and correspondence.

All persons who, during the month of issue, purchase a bill of goods, have any correspondence with us, or visit our laboratory, will receive a copy.

Those who desire to receive the RED CROSS NOTES regularly must send a request to this effect.

JOHNSON & JOHNSON,
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RED CROSS PRINCIPLES.

Evident confusion exists in the minds of many people in regard to the methods of Red Cross relief. We desire to state so emphatically that those who run may read, that THE AMERICAN NATIONAL RED CROSS NEVER APPEALS NOR SOLICITS AID FOR ANY PURPOSE. It does not even adopt the customary and popular practice of raising money by entertainments, as teas, fairs, etc. We are from time to time made aware of the existence of such methods for raising money, apparently by the Red Cross. These are by outside societies or bodies using its unprotected name and insignia for local objects of their own, and to which object they are applied, never finding their way to the relief work of the National organization.

It is a principle which we have always steadfastly maintained that charity and beneficence were degraded by being reduced to a dependence upon a system of beggary. This principle we have not only openly advocated but rigidly carried out in practice.

Some readers may recall an article appearing in the New York *Tribune* of May, 1896, from which we make the following brief extract:

"A moment's reflection will be sufficient to recall to your readers the fact that in all the fourteen years of the existence of the Red Cross in America, and on almost a score of fields where it has administered relief; they have never been appealed to by it for contributions. Its first and strong principles are, never to ask for help. Its method is to go instantly, with its own funds, to a field of reported disaster, simply giving notice of the fact that it goes, investigate, and on learning the situation, faithfully report the same to the people through all the public channels, and private sources as well. This information, which can be thoroughly relied upon, has always been held sufficient.

"It takes the ground that the American people, intelligent, humane and liberal, require only to be assured of a real need, and shown an avenue by which it can be reached with relief, to call from them the proper action; they are as humane as ourselves, and need no appeal for generosity from us. The Red Cross will continue to state conditions plainly, but claims no monopoly of charity."

Official declaration of American National Red Cross in report of relief expedition to Asia Minor.

A RED CROSS WEDDING,

These leaflets are not intended to record social doings, but we cannot refrain from noting the important event which occurred at the Red Cross Hospital in New York, Friday, August 6th. At this time Miss Bettina Hoffker, Sister-in-Chief of the Hospital, was married to Dr. A. Monae Lasser, Surgeon-in-Chief of this Hospital. Miss Clara Barton, President of the American National Red Cross, was present at the ceremony, and the bride was given away by William T. Wardell, President of the Hospital.

Sister Hoffker, the bride, has rendered four years of most efficient service to the Red Cross Hospital without compensation. Miss Barton says of her, "Pity has been her inspiration, good judgment and principles her guide, and perseverance in effort her success. The Red Cross Institute has been founded and established by her intelligence, sympathies, industry and sacrifices."

Dr. Lasser, who has given his eminent services to the work of the Hospital for four years, is a surgeon of most pronounced abilities.

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NOTES.

A new Physician's list has just been issued giving a full list of goods of our manufacture with approximate prices at which these goods are sold by the drug trade to physicians. We do not sell to physicians direct as we firmly hold that the drug trade is the legitimate channel through which the medical profession and public should receive their supplies.

We shall be glad at any time to send any physician requesting same full literature and information covering any of our products, together with samples of new goods. And we will cheerfully answer any questions regarding the same or in any way relating to our branch of pharmacy.

Druggists are requested to send us the name of any physician whom they think would be interested in our literature or special products.

All plain Gauze Bandages are now put up by Johnson & Johnson sterilized, they are wrapped in germ proof paper; each bandage separate, one dozen bandages in a seal. The advantage of a sterilized bandage will be appreciated by careful surgeons.

Special offers are now being made to druggists of a handsome and unique display stand, which will be sent to purchasers of one dozen Johnson's Tablets. Druggists who write will receive a picture of the stand and particulars of the offer.

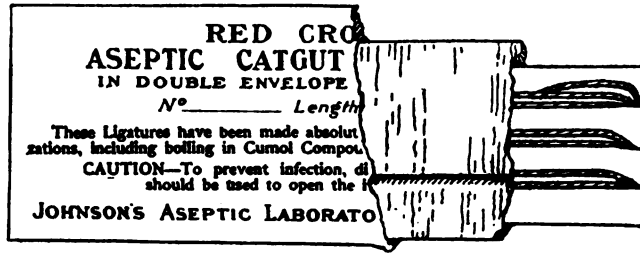
The advance of price in cotton goods will in the near future increase the price of gauze, especially as applied to gauze in bulk; quantities of which are sold to hospitals and large consumers at low rates.

Our Absorbent Cotton as put up under the label "Perfect Absorbent Cotton" is not labeled "Aseptic" As a matter of fact, however, it has passed through many processes, any one of which would completely distroy germ life. It is handled under rigid systems of cleanliness, and might therefore be said to be aseptic or surgically clean.

Absorbent Cotton put up under the label "Sterilized Aseptic Cotton" is guaranteed to be sterile in addition to all other processes. This cotton is subjected to special sterilization in our steam vacuum chambers, is sealed, and will remain aseptic until opened by surgeon. Sterilized Absorbent Cotton of our make is sold at the same price as the ordinary absorbent cotton and should be used by all careful surgeons.

As this leaflet is passing through the press there is in course of erection in our Laboratory, new machinery and apparatus sufficient to fill ten freight cars. This enlargement is brought about by the rapid growth of business, coupled with the evolution and development of our processes, whereby improvements are made which enhance the quality of goods produced, and at the same time usually lower the price.

Absorbent Cotton is a trite example to show how improvement in process will increase demand and cause a lowering of price. A little over ten years ago cotton was little used; a pound was all an ordinary druggist would carry in his stock; the price was a dollar a pound. The cotton was done up in wads and the surgeon who used it pulled it out in bunches. It was not white, and the most of it hardly absorbent. The processes were nearly all carried on by hand, and there was no factory producing much above a hundred or two pounds a day. We devised a method of rendering it truly absorbent and white in color; rolling it in layers, with tissue between each layer, and at once it sprang into favor. To-day many druggists buy it by the ton; our capacity has increased to ten thousand pounds a day, and the retail price is about one-third what was formerly the wholesale rate.



RED CROSS LIGATURES WITH INNER AND OUTER GERM PROOF ENVELOPES TORN OPEN.

CATGUT.

Since this material was introduced into surgery by Lister, a vast amount of labor and thought has been expended in attempts to properly prepare it for use. The literatureof this subject is very extensive. The methods and suggestions embrace every possible device for rendering it sterile, and recommend a vast list of antiseptics for its preservation.

Notwithstanding all this, reports have heretofore shown that none of the infinite number of processes were wholly satisfactory. Those processes that produced sterile ligatures, made them brittle; methods that did not make the strings tender, left them infected. Finally, if by chance made aseptic, they were easily reinfected, so that no one was really furnishing absolutely aseptic ligatures.

We have given attention to this vexing problem in our laboratories almost continuously for ten years—trying every conceivable plan—following every suggestion—working out every method. We venture to say that our experiments and researches have cost many times our profits upon this material The difficulties to be overcome can be partially realized when we consider the nature of this gut (the intestines of sheep, twisted into hard cords). It is a gelatinous substance, often infected with the deadly Anthrax, and sometimes with germs even more resistant than those of Anthrax. It is impenetrable by most solutions, destroyed by heat, rotted by chemicals; and, worse than all, a substance that will gather germs in handling. It is a jelly-like thing, that in itself receives, holds and nourishes germ life: easy to infect, hard to disinfect.

At last we produced the Red Cross Aseptic Ligatures, that are as their name indicates—aseptic—free from germ life, protected from infection by handling, with their tensile strength and elasticity unimpaired. The processes by which this is accomplished have been published in detail. Their completeness consists in the fact that sterilization is accomplished by means of a series of operations by which the organic structure of the infecting bacteria is removed and their life destroyed without touching the strings by the hands. In brief, the Ligatures are sterilized while inside a protecting envelope that allows the sterilizing agents to penetrate, but prevents the operator from touching the gut. The Ligatures reach the surgeon in this same envelope (still further protected by an outer covering), then sealed in glass. These strings reach the wound (untouched save by the surgeon) direct from the sterilizer.

We are safe in saying no known system approaches that under which Red Cross Ligatures are sterilized and handled. Our claims for them have been verified by purposely infecting strings with the most resistant germs and passing them through the sterilizing processes. Thorough bacteriological tests have shown that the germs were wholly destroyed.

Further ample proofs have been given by exhaustive tests made by our surgical friends during the course of experiments, and by the fact that in the thousands of packages sent out since placing them upon the market, not one report has been made of the occurrence of infection from Red Cross Aseptic Ligatures. These Ligatures are put up in strings 30 inches long, each string in a double germ-proof envelope; 12 envelopes are put in a glass bottle and sealed. They therefore cannot become infected in their handling and sale by the dealer. One or more ligatures can be removed without endangering the remaining strings. If the inner envelope is opened with disinfected hands or forceps all possible danger is easily avoided. The important point is that they are rendered absolutely sterile in their treatment, and with a moderate amount of care will reach the surgeon in perfect condition.

RED CROSS NOTES.

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COPYRIGHTED 1897.

No. 7. NEW BRUNSWICK, N. J. OCTOBER, 1897.

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JOHNSON & JOHNSON,
New Brunswick, N. J.

BOSTON MEDICAL LIBRARY 2 1897

"Yet I doubt not through the ages one increasing purpose runs,
And the thoughts of men are widened with the process of the sun."

In September, 1814, a congress of powers met at Vienna to readjust the map of Europe after the Napoleanic whirlwind, which had just passed over it. In September, 1897, forty nations, by their representatives, gathered under the Red Cross flag at Vienna, in order to fully secure humanity, neutrality and charity under arms.

In 1814, the congress of Vienna met to bicker over land and money; now it meets to ameliorate the condition of that class of persons who maintain the rights of nations. In 1814, the congress of Vienna alternated its acrimonious bickerings with great pomp and splendid court festivities. In 1897, the congress of Vienna will labor quietly, without display, to relieve suffering throughout the world. In 1814, Russia greedily urged its rights to the enslavement of starving Poland. In 1897, Russia respectfully suggests the extension of systematized medical aid to the poor, the distressed of all the nations of the earth. The nations that met at Vienna in 1814, met because they hated each other; forty nations met at Vienna, in 1897, because they have learned to know and acknowledge a duty to one another.

This present day, the congress of powers is the sixth international conference of the Red Cross or Geneva Treaty—a treaty under which forty signatory powers joined together in mutual agreement to adopt methods for the amelioration of the condition of the sick and wounded in war; to stay the hand of barbarism in the conflict of arms; to afford relief in calamities and disasters arising from epidemics or in the wars of the elements.

The work of carrying out this treaty is effectively carried on by the Red Cross Societies of the various nations represented in the compact. Delegates chosen by these societies and clothed with representative powers by their respective governments meet every five years to renew and further extend the operations of the treaty.

At the Red Cross Congress of this year the following were among the leading topics considered:

The organization of sanitary service in all African colonies.

To recommend a system of emergency dressings for the wounded, embracing the advances of Asepsis and adapted especially to Red Cross field surgery.

To extend the activities of the Red Cross in times of peace.

To make the violation of the Geneva Treaty by individuals a penal offence.

The establishment between the signatory governments of an international tribunal to decide doubtful questions under the rules of the Geneva Treaty.

To establish for a Red Cross or sanitary corps a right of way across a neutral country, even when destined for the relief of a belligerent party.

To provide for the extension of Red Cross aid from neutral powers to beligerents under all conditions.

The extension of the Red Cross service and regulations to marine warfare.

To protect the Red Cross emblem from misuse.

The adoption of measures to facilitate the transportation of personal and sanitary material in the time of war or public calamity, and its exemption from custom regulations.

Provisions to meet the enlarged sphere of Red Cross service in coming wars.—

A—Extension of Red Cross service to all epidemics.

B—By extending competent medical aid to the poor when necessary.

C—Organization of Red Cross Aid Societies in large cities.

D—Enlistment, organization and instruction of nurses for Red Cross service.

The delegates appointed by President McKinley to represent the United States at the Red Cross Congress in Vienna were Clara Barton, George H. Pullman, Dr. J. H. Hubbell, C. K. Wood and Dr. Lucy Hall Brown. They sailed September 12th.

MARCHING ON.

"What a change you have made since I was here before!" is the expression of our most frequent visitors. No wonder; for in our laboratories there is always going on in some department a transition from old methods to those that are newer and more advanced. This means new machinery, new apparatus and, in a recent instance, a revolution of the larger part of the entire laboratory.

During the past few months, the departments devoted to the production of absorbent cotton, gauze and bandages, material, etc., have passed through an entire evolution. The change from the methods of two months ago is more striking than the difference between the former methods and those of ten years ago.

To particularize would take a score of columns. Briefly, we have taken out all apparatus formerly used, and probably the most complete of its kind, and by the aid of a goodly army of mechanics, put in apparatus that would more than fill a dozen railroad cars. We have more than doubled our capacity for producing absorbent cotton, surgical gauze, dressings and bandages. Further than this, the absorbent cotton produced by our entirely new methods will be surpassingly fine in fibre, stronger, more elastic and have a finer finish. The improved processes of rendering cotton absorbent eliminates rotting by chemicals, handling and tearing by machinery, each and every fibre being made absolutely absorbent, white, straight and put together in even, smooth layers. It is free from chemicals, sterile and perfect. Our methods of preparing surgical gauze, while requiring formidable apparatus, is very simple and perfect. The specially spun gauze cloth is taken up in the apparatus, the oils, waxes, coloring and all foreign matters extracted. The gauze is washed time after time in purified water, sterilized, dried, pressed, folded, cut, measured, rolled and packed in a continuous process and as rapidly as the eye can follow. This is all done without handling, in sterilized apparatus. All these materials are manipulated in the most ideal way that could be devised for the producing of dressings for wounds. More than all, these improvements, while greatly enhancing the quality, will not raise but reduce the cost.

These innovations make an important era in our history. Our laboratories are the largest and cleanest in the world. They produce every fibre of cotton, every thread of gauze surgically clean. They are antiseptically perfect in every way, with a capacity pratically unlimited.

PHYSICIAN'S LIST.

There has just been issued from our presses a Physician's List of all the products of our laboratory. It has been revised to date and contains all the newer goods.

In issuing a Physician's Price List, it has been found very difficult to fix an exact price at which goods are to be supplied to physicians by dealers. This difficulty arises from the great difference in rates of freight, the nature of the article and the quantity sold. It is obvious that a dealer cannot sell an ounce of cotton at as low a ratio of profit as several pounds would be supplied. Nor can the physician in Alaska expect to purchase as cheaply as those situated in the great commercial centres. Therefore, in this Physician's List the prices are simply as a guide to both dealer and physician as to the approximate price. The list is illustrated and contains matter fully describing many of our products. The following is from the preface of the Physician's List:

"The prices in this list are the approximate prices usually charged to physicians by dealers in our products. They are subject to discounts in quantity. In localities remote from centers of traffic, an additional percentage must be allowed for freight.

"Recognizing the jobber and the dispensing pharmacist as the proper distributing agents for medicinal and surgical supplies, we do not sell to physicians direct. A full line of goods of our manufacture is carried by nearly all jobbers and leading retail dealers. From these sources our medical friends are requested to obtain their supplies. Where our goods cannot be obtained from a local dealer or jobber, we shall esteem it a favor to be informed of the fact.

"Descriptive literature upon any of our products will be forwarded on request.

"Quality guaranteed on all goods of our manufacture."

A copy of this Physician's List will be sent to any physician who requests the same. Any druggist may obtain copies for physicians dealing at his store, by forwarding a request stating how many copies are desired.

SIR HUBERT'S PRAISE.

Chas. Austin Bates is the prince of critics of advertising literature and the king of experts. He says: "I have here a booklet from Johnson & Johnson, of New Brunswick, N. J., who make a speciality of sterilized bandages and preparations. The title is Asepsis Secundum Artem. The cover is black. There is an attractive picture of a hospital nurse, in half-tone, and the red surgeon's cross on the cover. The reading matter is of the most interesting character; the illustrations are exceedingly good, and all the contents, whether text or cuts, are directly to the point. I think this booklet of the Asepsis people is better advertising for reaching doctors than * * * * I will say, however, that, of their kinds, each is about as good as it can be."

COLORED NURSES.

The Charleston, S. C., Training School for colored nurses has proven a successful undertaking, they have recently acquired a building for use of the school and for Hospital purposes. This institution has attracted considerable attention, and its success is looked upon with great interest by the friends of the colored race.

Every applicant for admission is required to be in good health, and must present a certificate of good moral standing. The applicants must also have a diploma from some college or high school, or a second grade teachers' certificate, or pass an examination to show that they have a fair common school education. By this plan the best class of negroes are taken in the institution, and are able to learn the theoretical part of the duty of caring for the sick, as well as the practical knowledge which they acquire in the hospital.

Both white and colored physicians are on the Hospital staff. The faculty of the school is as follows: Surgical nursing and hygiene. Dr. A. C. McClennan; obstetrical nursing, Dr. L. Hughes Brown; medical nursing, Dr. J. M. Thompson; anatomy and physiology, Dr. R. J. McBeth; therapeutics, Dr. T. D. Rankl; chemistry, Dr. T. M. Roberts; dietetics and Superintendent of Nurses, Miss Ellen Woods; care of infants, Dr. W. D. Crum.

WINTER IS COMING.

Signs of the coming north winds' blow and the driving snow are very apparent in our chest protector department, where great heaps of felt and chamois are being fashioned into jackets and protectors.

New styles and forms will be offered this season. The jackets which were so popular last season have been improved, both in shape and style, and offered under the name of Polar Vests. Each vest will be packed in a separate box. Polar Vests have now become quite the thing for ladies' wear, taking the place of heavy clothing, and make a neat, stylish and sensible addition to any lady's wardrobe.

For gentlemen susceptible to cold or exposed to changable weather, a Polar Vest is indispensable; their use often obviates the wearing of extra clothing or an overcoat, and almost equals an ulster. This season will be offered the Cariboo Protector, made expressly to combat the severest Cariboo weather. It is a first-class garment, made of the finest grade of felt and extra large; it forms a protective covering to the entire trunk and chest.

Cariboo Protectors are especially suited to out-door workers, such as car-drivers, motormen, conductors, laborers, etc.

Cariboo Protectors retail at 50 cents, $1.00, $1.50 each, according to finish. They are the most economical, comfortable and servicable of all protectors.

Druggists who give attention to the trade of these goods will be wise. The demand for them is increasing; a little pushing among the people who, by their avocation, are exposed to the rigors of winter will meet with good returns. In order that dealers may have a complete assortment, without the necessity of carrying a large stock, and in order to give the retailer a more than ordinary profit at the opening of his fall trade in these goods, we have set aside a limited amount of stock, which we have put up for sale in boxes only containing one dozen, assorted as follows:

SPECIAL OFFER.

$13.60 LIST FOR $9.00 NET.

Dozen.		Reg. Price per Doz.
1-12	Small Chamois Chest Protectors, double	$7.00 $ .58
1-6	Medium Chamois Chest Protectors, double	9.00 1.50
1 12	Large Chamois Chest Protectors, double	12.00 1.00
1-12	Small Felt Chest Protectors, double	4.00 .34
1-6	Medium Felt Chest Protectors, double	5.50 .92
1-12	Large Felt Chamois Protectors, double	7.50 .63
1-12	Chamois Jackets, male, large	24.00 2.00
1-12	" " " medium	22.50 1.88
1-12	" " female, large	30.00 2.50
1-12	" " " medium,	27.00 2.25
		$13.60

This assortment, as long as stock lasts, is offered at the special flat rate, $9.00 net, the reduction of $4.50 from regular prices on this assortment gives the druggist something to pay him for making a little extra effort to work up trade for the season, and advertises his goods and himself. The assortment will fill his show-window nicely.

In ordering, reference should be made to "Special Assortment Offer."

"OF INESTIMABLE VALUE."

TEXAS STATE QUARANTINE SERVICE,
DISTRICT OF BRAZOS SANTIAGO,
ARTHUR S. WOLFF, M. D.

Brownsville, Texas, Sept. 5, 1897.

JOHNSON & JOHNSON,
New Brunswick, N. J.

Gentlemen:—Have perused your "Asepsis Secundum Artem" with great pleasure and profit, it having imbued me—a first-year medical student—with the necessity of thorough asepsis in any and all surgical operations with which I may in the future be associated. It is a pamphlet of inestimable value, the several *fac-simile* pages from "Aseptic Dressings," rules and suggestions being especially so.

It is to request a copy of the latter that I write, for I see you send it upon application. Would also appreciate other literature upon the subject.

Very respectfully,
HARRY K. LOEW.

BLANK ORDER PADS.

We have recently forwarded our friends a pad of order blanks intended to be used in sending orders to their jobbers. The blanks are intended to be used when ordering any and all kinds of goods. They will be found of great convenience to the druggist and the jobber, and will greatly facilitate the dispatch of orders.

The blanks are on good writing paper, ruled with sufficient spaces for any ordinary list of wants. The heading is printed in colors with blanks for shipping instructions, etc. On the back of the pad is a list of goods of our manufacture, which can be used in checking stock, noting wants, etc. When the pad is exhausted, another will be supplied if requested.

Dealers who may not have received one of these pads will oblige us by notifying us of the fact.

BETTER DISCOUNTS.

Since the issuance of our Annual Price List, some of the discounts therein have been changed, to the great advantage of the buyer. The following discounts are now given for the quantities named. Dealers should cut this out and paste it in our Price List. These discounts are to be given by all jobbers.

DISCOUNT SHEET.

JOHNSON & JOHNSON.

Plain Gauze Bandages, in $10.00 lots; Roller Cotton Bandages, unbleached, in $10.00 lots,—20 per cent. discount.

Ligatures, silk and catgut, in $10.00 lots, Johnson's Baby Powder, in $10.00 lots,—20 per cent. discount.

Suspensory Bandages, in $10.00 lots,—25 per cent. discount.

Catheters and Bougies, any quantity,—20 per cent. discount.

Corn and Bunion Plasters (except Zonas Corn Leaf and London Corn Bunion),—20 per cent. discount.

Rubber Adhesive Plaster, all sizes (except Wood's and Zonas),—20 per cent. discount.

Medicated Soaps, all kinds, $10.00 lots,—20 per cent. discount

Any quantity of the above goods may be included in a $10.00 assortment at 20 per cent. discount.

Plain Absorbent Cotton, 25-pound lots,—20 per cent. discounts.

Papoid and Kolafra preparations,—net list,

All goods not mentioned above, $10.00 lots,—10 per cent. discount.

All goods in less than $10.00 lot (except as specified above),—net list.

JOHNSON & JOHNSON,
New Brunswick, N. J.

MEDICAL MEETINGS, OCTOBER, 1897.

Mississipi Valley Medical Association, Louisville, Ky. Oct. 5—8.

New York State Medical Association, New York, Oct. 12—14.

Utah State Medical Society, Salt Lake City, Oct. 5—6.

Vermont State Medical Society, St. Albans, Oct. 14—15.

PHARMACAL MEETINGS, OCTOBER, 1897

National Wholesale Drug Association, Richmond, Va. Oct. 11—14.

NEWER ANTISEPTICS.

The following is a continuation of the list of new surgical antiseptics which was begun in the August number of these notes. Limit of space allows little more than a mention of the name in each case. Fuller information regarding any of the chemicals named will be given on request.

Bacillin (proprietary).

Benzonaphthol, synonyms *Beta-Napthol Benzoate*, *Benzoyl-Beta-Naphthol*.

Benzo Para-Cresol, from action of benzol chloride on sodium salt of para-cresol.

Benzo-Phenoneid, similar to pyoctanin.

Benzosol, synonyms *Guaiacol Benzoate*, *Benzoyl-Guaiacol*

Benzoyl-Eugenol.

Bismutal, a mixture of Bismuth Phosphate and Sodium Salicylate.

Bismuth Compounds. Many organic compounds of bismuth have been brought forward as antiseptics; they are prepared by the interaction between bismuth nitrate and a salt of an organic acid.

Benzoate (Sub-Benzoate).

Naphtholate.

Oxyiodide, Subiodide or Basic Iodide.

Oxy-iodo-Gallate, or *Airol*.

Pyrogallate (Helcosol).

Salicylate.

Subgallate.

Boral, synonym *Aluminum Boro-tartrate*, from Aluminum Sulphate and borax.

Bor-Salicylate, Sodium Salicylate and boric acid.

Boro-Salicylate of Glycerin, a concentrated solution of boric and salicylic acid chemically combined in glycerin.

Borosalylic Acid.

Borosol (proprietary).

Boroform (Boro-Salicylate of Iodoform). Johnson & Johnson prepare under this designation a compound gauze containing iodoform, salicylic acid, boric acid, combined as a boro-glycerole (or boro-salicylate of glycerin) and emulsified with starch glycerole.

In the process of combination, the active agents are more or less changed into neutral and basic salts, retaining their full microbicide and antiseptic properties, but without their inherent objectionable disagreeable features. Their combination has high inhibitory power against germ life, possessing the power not only to destroy germ life, but also destructive to the products of their vital activity.

Boroform Gauze is free from disagreeable and irritating properties, non poisonous and bland.

Boroform Gauze is not neutralized by excretions or wound discharges; there is no reaction or coagulation in albuminous solutions.

Bromol, synonyms *Tri-Brom-Phenol*, *Bromphenol*. Phenol treated with bromine.

A copy of Asepsis Secundum Artem will be mailed free on request. It is worth reading.

RED CROSS NOTES

JOHNSON & JOHNSON LABORATORIES

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No. 8. NEW BRUNSWICK, N. J. 1898.

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ANNOUNCEMENT.

These leaflets are issued monthly, supplementary to our monographs, booklets and other publications.

The issues are sent without cost to such persons as we may be able to reach through the regular channels of trade and correspondence.

Those who desire to receive the RED CROSS NOTES regularly must send a request to this effect. JOHNSON & JOHNSON.
New Brunswick, N. J.

KING COTTON.

Cotton, though known to the ancients, did not reach its supremacy until it came to be the great staple production of our Sunny South. It was here that it received a popular personification and arose to an all potent power of the American Union, under the title of "King Cotton."

"No, you dare not make war upon cotton.
No power on earth dares make war upon it.
COTTON IS KING."
—*From speech of James H. Hammond, U. S. Senate, 1858.*

For three thousand years cotton has been used for covering wounds. But somewhere in the beginning of antisepsis, cotton fibres were made absorbent—a discovery that will remain of value until the end of time.

No one inanimate thing has been such an important factor in surgery as the fibres of absorbent cotton. Cotton fibre requires special selection and treatment to render it suitable for surgical use. We are told that absorbent cotton is produced in cotton mills and that this kind is sold cheap. It is evident that absorbent cotton from such a source is prepared without any regard or knowledge of the requirements of surgery.

Johnson & Johnson in this leaflet detail some things regarding their methods of preparing absorbent cotton which are based upon a careful study of what absorbent cotton should be when it is to be used as an application to a wound.

ABSORBENT COTTON CHEAPER THAN EVER.

Absorbent cotton is now sold at a very low price, the ruling prices in quantity being far below the value of the dry goods store cotton batting. The causes of the present low prices on absorbent cotton are numerous. For instance, competition. Ten years ago when Johnson & Johnson began to make absorbent cotton, the output of all makers was not more than a hundred pounds a day, the price necessarily ruled high. They improved the quality, lowered the price, and in consequence the consumption was increased in a very great ratio. Another factor that has tended to reduce prices on absorbent cotton is improved methods of production. Formerly all the operations, some forty in number, were performed by hand.

When machinery was substituted for handwork the cotton was made cleaner, better and its cost reduced in proportion. Improvements have been constant in this direction and each succeeding change tends to the betterment of the product, saving of labor, increase of production and reduction of cost.

The phrase "low prices," when applied to surgical dressings, is not altogether an inviting sound, it frequently means trash. Therefore, absorbent cotton whose only feature is low price, is apt to be trash. Much absorbent cotton is made of waste and scraps from the cotton mills prepared by producers who have no knowledge or thought that it is to be used in dressing wounds. The aim is to sell it cheap; thus one finds absorbent cotton full of broken fibres, knots, threads, dust, leaves dirt and loaded with fillers to make weight, to sell cheap.

Johnson's absorbent cotton is sold at a low price, but the low price is an inci

dent, not a feature. The feature of Johnson's absorbent cotton is that it is prepared in a laboratory where surgical cleanliness is the spirit that guides and over-rules all. Their absorbent cotton is in every fibre clean from beginning to end. As a crowning feature, Johnson's absorbent cotton is in its finishing process sterilized. Every pound and every ounce leaves the factory sterilized.

Incidentally this perfection is reached by the aid of automatic rapidly moving machinery, this is better than hand work and far cheaper. When this machinery is moving at speed, the product is probably greater by several tons a day than several other similar factories combined. The secrets of the low prices now ruling for Johnson's absorbent cotton are the natural result of unusual circumstances, unequaled facilities for production; unequ lied quality for price follows as a matter of course.

Johnson's absorbent cotton made by surgically clean methods—sterilized and made aseptic as a finishing process—is as cheap, often cheaper, than the common kinds.

ORIGINALITY.

Originality of thought is essential everywhere, but it is vital in the conduct of an industry like ours. Imitation is said to be a sincere form of flattery, but in respect to our peculiar products, we have found that imitators, though numerous, are content in conforming to the general appearance of our goods, closely copying our labels and literature, without attempting to follow out to the ultimate conclusion our methods and processes which are so essential to the perfection of the work. For instance: Ten years ago we introduced into surgery absorbent cotton rolled into sheets with tissue paper between each layer; this was a device of the greatest importance; under the older method of putting up absorbent cotton into wads, its use was limited, but absorbent cotton rolled into tissue at once became absolutely indispensable to surgery. Surgical cotton could not now be sold if it were put up in any other form. Therefore, every manufacturer must of necessity follow our lead, and roll his cotton into layers, with tissue paper between. But, we are sorry to say, that our imitators have not followed us in building dust-tight and germ-proof buildings, built and adapted solely for the production of surgical dressings. Neither have they invented and erected elaborate machinery and apparatus, or devised extensive processes to produce a pure cellulose fibre, free from dirt and foreign matter. While we have spent years of time and thousands of dollars to produce perfect absorbent cotton fibre that is aseptic and fit for surgical purposes, they have stopped at the use of our tissue rolls, color of cartons and labels.

***

We do not object to other manufacturers following our methods, or improving upon them, we have given them to the world of medicine free of charge. We publish our processes and send them at our own expense to the medical profession. We open our laboratory doors to all mankind, but we have a right to complain when imitators, in following us and putting up surgical dressings, supposed to be the same in all respects as those of our own make, simply do so by adopting the shape of our packages, and coyping of our labels, with no pretense of using the system, the care and the skill which have made our products as perfect as art can produce. Where the object sought is appearance and price, dealers and physicians are deceived, they are finally disappointed in result; serious consequences often ensue. Our products are thus condemned because of the sins of our imitators. In all fairness, therefore, we ask druggists and physicians who desire dressings prepared according to the art of asepsis, to either specify our make, or require that the product of other makers shall be manufactured to equal ours, not only in style, package, name and label, but in fact.

THE RED CROSS TRADE-MARK.

The United States Circuit Court of Appeals has recently adjudged and decreed that Johnson & Johnson are entitled to the exclusive use of the red cross symbol as a trade-mark upon the goods of their manufacture.

The important points of the opinion of the court as delivered by the Hon. Judge Jenkins, are as follows:

"Johnson & Johnson have long been engaged in the manufacture and sale of medicinal and surgical plasters of various kinds put up in various descriptions of boxes, and had adopted as as a trade-mark, in addition to other insignia, a red Greek cross. Bauer & Black, another corporation, since the adoption and use of said trade-mark by Johnson & Johnson, have engaged in the like business. Bauer & Black used upon its boxes a Maltese cross in white and gilt, with a red circle thereon.

"One may not legally use means, whether marks or other indicia, or even his own name, with the purpose and to the end of selling his goods as the goods of another. If such means tend to attract to himself the trade which would have flowed to the person previously accustomed to use them, their use will be restrained by the law.

"If the goods of a manufacturer have, from the mark or device he has used, become known in the market by a particular name, the adoption by the rival trader of any mark which will cause his goods to bear the same name in the market is as much a violation of the rights of that rival as the actual copy of his device.

"A purchaser intending to purchase a specific article of approved excellence, which has come to be known either by catch-words easily retained in memory or by a certain picture which the eye readily recognizes, is not bound to study or reflect, but is required only to use that care which persons ordinarily exercise under like circumstances.

"The evidence shows that the goods of Johnson & Johnson had come to be known and were offered, ordered, and sold as 'Red Cross Plasters,' the Maltese cross adopted by Bauer & Black, in so far as it contained the red circle, had a tendency to promote confusion and would interfere with the legitimate trade of Johnson & Johnson.

"While it might be true that those engaged in the trade and acquainted with the manufactures of both parties would not be deceived, nevertheless, as the goods of Johnson & Johnson had come to be known as 'Red Cross Plasters,' although a discriminating examination would detect the distinctions in the trade-mark, the casual observer might easily be mistaken and imposition would be easy, since, while the red cross speaks to the eye, the article, being known by that designation, speaks also to the ear by that name, which is the one peculiar and commanding feature imposed upon the packages containing the plasters to designate their origin, so that in the absence of critical examination one manufacture might readily be imposed upon a purchaser desiring the other."

At a Stated Term of the Circuit Court of the United States for the Northern District of Illinois, in the Seventh Circuit, held on the 17th day of January, 1898.

The Hon. Judge Grosscup ordered a decree:

"That an injunction issue herein perpetually enjoining and restraining the Defendant, Bauer & Black, its officers, clerks, attorneys, agents, servants and workmen, and all claiming through or under it, from making use in connection with the manufacture or sale of plasters of said representation of a Maltese cross or of the designation 'Red Cross' or of any description of cross of red color."

COTTON LABORATORY.

A considerable portion of our twenty-three buildings is devoted to the preparation of absorbent cotton and dressing materials made of cotton.

The laboratories are filled with a battalion of trained operatives who, if they know anything well, understand most thoroughly the principles of asepsis and antisepsis, and practice them in the making of the surgical dressings on our list.

These buildings are filled with machinery and apparatus that is ingenious and in some respects wonderful.

It takes 14,000 acres of cotton plants in the Sunny South to supply the demands of the various machines.

In this department raw cotton as shipped from the field is opened and passed on through some forty processes, making an endless flowing stream, becoming cleaner, whiter, purer, until its last stage, where it is rolled, wrapped, sterilized and sealed, ready to be laid on a wound. The daily capacity of absorbent cotton is 10,000 pounds. The entire output of cotton, inclusive of cotton gauze cloth, lint, bandages, etc., reaches nearly five million pounds per year.

The various rooms and buildings in this department are as follows:

Raw Cotton Room; building No. 5; opening and mechanical cleaning of raw cotton. Bleaching Rooms; building No. 3; rendering cotton absorbent by extraction, chemical bleaching, washing, etc. Drying Rooms. Lapping Rooms; building No. 3. Carding Rooms; building No. 2; carding of absorbent cotton, during which it is rolled in layers with tissue and cut into sizes. Cotton Finishing Rooms; buildings Nos. 1 and 6, Absorbent Cotton put in cartons. The cartons are next passed into the vapor chamber sterilizer and subjected to germ destroying vapors in vacuo. All absorbent cotton leaves this chamber absolutely sterile and aseptic. The cartons are not again opened until they reach the consumer.

NEW FORMALIN STERILIZING CHAMBER OF JOHNSON & JOHNSON.

Capacity, 10,000 Yards of Gauze Per Day, 5,000 to 10,000 Pounds of Cotton Per Day.

RECENT ADVANCES IN ANTISEPTIC SURGERY.

From the *American Druggist*, Jan. 25, 1897.

The immunity from infection which has been brought about by advances in antiseptics has rendered it possible to undertake surgical operations of a character hitherto undreamed of. The operation for the excision of the stomach recently performed by Dr. Schlatter, of Zurich, Switzerland, would have been impossible but for the vast improvements in antiseptic and aseptic dressings.

By paying proper attention to the matter of antiseptic dressings, the druggist can frequently build up a very good business and prevent the physicians from patronizing a supply house or even the dry goods store, which has latterly come into the field as a competitor for this class of patronage.

The druggist is a natural purveyor of this line of goods, as his special knowledge places him in a position to be of the greatest value to the surgeon.

Some idea of the rapid advances being made in the domain of antiseptic dressings may be gathered from a study of the vacuum sterilizing chamber which is illustrated herewith. This chamber, which was built for Johnson & Johnson of New Brunswick, has the enormous capacity of 10,000 yards of gauze per day or of from 5,000 to 10,000 pounds of cotton per day. The full length of the sterilizer is not shown by the illustration, as it is capable of taking in six large truck loads at one time. The sterilizing chamber is operated by first exhausting the air and then admitting formalin vapors. In this manner the formalin is brought into most intimate contact with every particle of the dressing, the removal of the air making this possible.

The introduction of this system of sterilization has made it possible to thoroughly sterilize even the cheaper grades of dressings which would, on the plea of expense, have been impossible a year or so ago. With such facilities as these at our command we could meet any sudden demand, such as that to be caused by war, with but little difficulty.

A new Physician's List has just been issued giving a full list of goods of our manufacture with approximate prices at which these goods are sold by the drug trade to physicians. We do not sell to physicians direct as we hold that the drug trade is the legitimate channel through which the medical profession and publi should receive their supplies.

We shall be glad at any time to send any physician requesting the same full literature and information covering any of our products, together with samples of new goods. And we will cheerfully answer any questions in any way relating to our branch of pharmacy.

Druggists are requested to send us the name of any physician whom they think would be interested in our literature or special products.

RED CROSS NOTES

JOHNSON & JOHNSON LABORATORIES

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No. 9. NEW BRUNSWICK, N. J. 1898.

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New Brunswick, N. J.

AT LAST.

The story of the final solution of a vexing laboratory problem has been told several times in these columns, in the statement of the results attained after ten years of continuous attention to the task of sterilizing catgut ligatures. This seemingly simple task of rendering catgut aseptic has, up to this time, been found almost impossible of attainment, even in the hands of the most painstaking investigators. The constantly recurring records of new methods devised for this purpose attest the fact that the products have not proven satisfactory. The nature of the material, its source, the conditio s under which it must be handled, finally the extreme requirements of surgery, by reason of the use to which the material is put have each in turn, presented difficulties hard to overcome. It is no small wonder that the cry has arisen "away with catgut," a constant annoyance, always a menace, and a nutrient soil for germs. At its source, filled with deadly infection, the producer of pus, the cause of death. Sleepless nights, lost reputation, fatal results have all been charged against the account of this twisted cord of sheep's membrane. But the workers now confidently claim to have gained the victory, and that the condemned violin strings are now rendered absolutely aseptic, without in the least impairing, in fact, rather enhancing their natural advantages. Judging from previous experiences the claims made for Red Cross Ligatures, *viz.*, absolutely aseptic, free from all germ life, protected from infection during their manufacture, and such handling as may arise in their distribution and sale, seem rather strong. But the claims are made with a realizing sense that upon this little piece of cord hangs the weal or woe of the patient and reputation of the surgeon.

CATGUT NOTES.

It is supposed that the ancient makers of violin strings used feline intestines, hence the name catgut. In ancient Rome violin strings were made from the intestines of the lions and tigers who died in the arena.

Again catgut is supposed to have been originally "kitgut" or "kitstring," kit meaning a fiddle.

Modern Catgut is in reality sheeps' gut.

The ancients used silk fibre, hemp, linen, cotton and metallic wire for sutures.

Animal tissue sutures were used by Albucasis 100 A. D.

Ligatures were used for tying the blood vessels in the fourth century. Pare introduced this method in the 16th century. Physic, 1814, was the first to demonstrate the practical advantages of the animal ligature, he used chamois leather. Sir Astley Cooper, 1817, was the first to suggest violin strings.

Sir John Lister, 1869, introduced prepared (antiseptic) catgut.

Various animal tissues have been suggested and used as ligature material. Kangaroo tendon from rabbit's ear, mouse's tail, sinews of deer, ox, calf, horse hair, etc.

Catgut considered chemically is collagen, an anhydrous gelatine and fat. It may be converted into peptone by the peptoning ferments acids, etc., it may be changed to gelatine by boiling or soaking in the water.

Watery solutions and all astringent chemicals such as tannin, mercuric cloride, chromic acid, alum, etc., render catgut brittle and weak.

When catgut is knotted its strength is considerably lessened.

Even infected catgut ligatures will not lead to such long standing fistula as sometimes follow the retention of infected silk ligatures in the abdominal cavity. The catgut is finally absorbed.

Anthrax has been communicated to man through infected catgut.

The first truly aseptic catgut ligatures ever placed upon the market were the Red Cross Ligatures made in the laboratories of Johnson & Johnson.

INFECTED SHEEPS' INTESTINES.

Catgut is born with an hereditary taint. It comes into the surgical world septic—filled with germs. Factories in which it is produced belong to a class called by the French "Boyanderie" or similar in character to that of our small, ill cared for slaughter houses. From the same source comes materials for sausage cases, musical strings, racquet and bow strings, whip cords, mill strings, etc.

Catgut is described as the sub-mucosa of the sheep's intestines; in reality it is the whole gut minus the outer layer. The intestines are taken to the factories in as fresh condition as possible, though often much in an advanced stage of decomposition. They are washed in a weak alcoholic solution and the musculars are scraped and rubbed off by alternate washings and wringings. The tubes thus prepared are then twisted into cords and dried. Some makers using the half cylinder of the intestines, claiming that it is stronger in connective tissue. For this purpose they split the tube into half strings, the thinner ones being saved for fine strings. The various sizes of catgut depend upon the number of tubes taken together and twisted. The medium sizes containing three or four tubes are twisted by holding one end in a clamp while the other is attached to a revolving spindle. To the discolored strings sulphur fumes are applied for bleaching purposes. When the catgut is sufficiently twisted, the unevenness is reduced by rubbing with emery and pumice stone.

From the nature of the article it is impossible to treat the intestine during its manufacture in an aseptic manner. These facts emphasize the necessity of a thorough disinfection of the article. Added to the above is widespread prevalence of anthrax, and other infectious diseases which pre-exist in sheep; infection from exposure of handling in transport to the surgeon's laboratory is unavoidable. In fact, considering catgut as a string of gelatinous tissue, we see that it is a substance easily contaminated; also one in which germs find a most congenial soil.

THE WAY RED CROSS LIGATURES ARE PREPARED.

1. The ligatures are first given an exterior cleaning by scrubbing.

2. All moisture is removed. This process is essential that the solvents afterward used may thoroughly penetrate the tissue; even a slight amount of moisture would tend to weaken the strands when subjected to the intense heat of the final process.

3. The ligatures are next sealed in envelopes of toughened paper. This paper plays a most important part. It allows the sterilizing liquids to reach the gut, but is germ proof; prevents the infection of ligatures by handling. After the ligatures are placed within these envelopes they are not again touched by the hands. In other words, they remain sealed within this envelope during all subsequent sterilizing operations, or until opened by the surgeon.

4. The ligatures within the sealed envelopes are passed through successive percolations with naphtha, ether, benzol, alcohol, etc. These processes remove dirt, blood, fat and all other foreign material.

5. Final sterilization by boiling the ligatures still within their porous envelope in cumol compound, at a temperature ranging from 320° to 340° F.

6. Removal of cumol solution by heat.

7. Final sealing in an aseptic outer envelope.

Especial features of this process are, that the ligatures are not touched by the hands during all the processes of sterilization. They reach the surgeon directly from the sterilizing solution.

It has been demonstrated that no bacterial life can survive the final sterilization, *viz.*, boiling at a temperature over 320° F.

The double envelope is a perfect safeguard against subsequent infection. Trials made by bringing them in contact with infected surfaces, smearing with dirt, carrying in the pocket, etc., has proven that if the envelopes were kept unbroken no infection would follow.

PIONEERS.

In the years previous to 1886-'87 (the date of the formation of the firm of Johnson & Johnson) antisepsis had made but little progress.

While the dressings prepared by a few leading hospitals and immediately used gave good results, dressings obtainable by the great bulk of practitioners who were forced to rely upon the manufacturers were for the most part wholly unreliable, and in consequence the truth of Listerism was hampered for the lack of proper and easily obtainable dressing material. Under these conditions a great mass of physicians and druggists were unable to apply the principles of antiseptic surgery. To meet this want Johnson & Johnson devised a system of dressings made to fill the demand of the best surgical practice.

***

It has been universally acknowledged that the introduction of Linton Moist Dressings, consisting of gauze and cotton, marks the beginning of antiseptic surgery in this country, in that it placed reliable antiseptic dressings within the reach of every practitioner.

It was the first great forward step from the original Lister type of dressings. They were made by special formulæ and processes, were sterile, soft, pliable, perfect dressings. They continued to improve them. In the progressive steps they packed them in glass jars; they were hermetically sealed, and finally they fitted up a most complete aseptic laboratory, erected a disinfecting and sterilizing plant with vacuum sterilizers, etc. All this was accompanied with an enormous outlay of energy and money. Johnson & Johnson thus originated, placed on the market sterilized dressings, made under the systems of technique, unequalled in the most rigid hospital practice, published their formulæ, rules and illustrated their systems. Those who followed them put up a wet dressing in glass jars, similar in shape and style to theirs, even closely following the labels and cautionary seals, but without adopting any system of asepsis, and without sterilization. In one case the maker openly stated that the sterilization of his products was done by the printer on the labels, that asepsis was a fad practised by cranks.

***

Johnson & Johnson spent ten years of continuous labor in perfecting processes of rendering catgut ligatures aseptic. Their efforts were closely followed. Every new package issued found its counterpart in appearance, put up by other manufacturers. They finally reached the summit of success in Aseptic Red Cross Ligatures. They were made absolutely aseptic by a long series of processes. They had scarcely been brought to the notice of the profession, when a *facsimile* appeared, done up in double envelopes, with reading matter, type, even to a Red Cross symbol all exactly following Johnson & Johnson's pattern. But the maker of these imitation ligatures omitted the vital and essential principle in preparing aseptic catgut ligatures, *viz:* avoidance of handling by operatives, and the asepsis was probably all on the label.

***

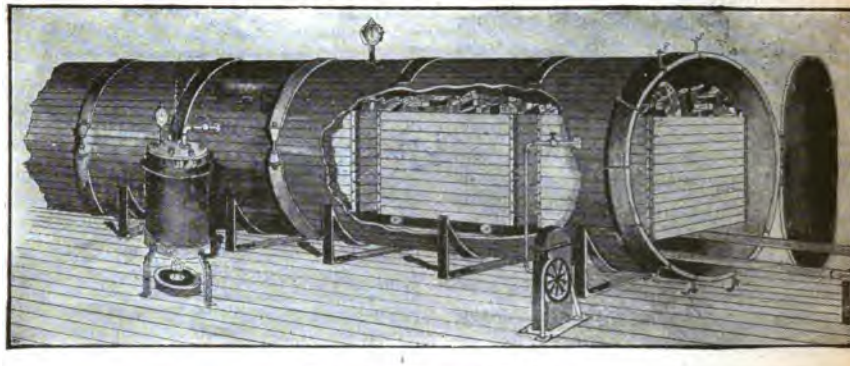
In regard to this, Johnson & Johnson have made the following statement:

"We do not object to other manufacturers following our methods, or improving upon them.

"We open our laboratory doors to all mankind, but we have a right to complain when imitators, in following up and conforming surgical dressings, supposed to be the same in all respects as those of our own make, simply do so by adopting the shape of our packages, and copying of our labels, with no pretence of using the system, the care and the skill which have made our products as perfect as art can produce. In all fairness, therefore, we ask druggists and physicians who desire dressings prepared according to the art of asepsis, to either specify our make, or require that the product of other makers shall be manufactured to equal ours, not only in style, package, name and label, but in fact."

[From *Druggists Circular and Chemical Gazette*, February, 1898.]

A Surgical Revolution.



VAPOR VACUUM STERILIZER.

Dressings in their final process are passed into this sterilizing chamber and are subjected to germ destroying vapors under vacuum Pressure.

Capacity—10,000 pounds Sterilized Cotton per day, 20,000 yards Sterilized Gauze per day.

An Aseptic Dressing, *e. g.*, Aseptic Gauze, means one that is free from all kinds of bacteria.

Dressing material that is surgically clean *i. e.* Aseptic—not only looks clean to the eye, but is free from surgical dirt—living organisms.

Sterilization when applied to the preparation of surgical dressing means to destroy all forms of germ life.

The methods of preparing surgical dressings, such as surgical gauze, absorbent cotton, bandages and other surgical material has been revolutionized in the Laboratories of Johnson & Johnson by the invention of labor-saving apparatus and by the aid of many important improvements, some of which have just been completed. This is a crowning triumph in the history of gauze and cotton.

The picture on this page shows the latest addition to their germ destroying armament. This last improvement makes this probably the largest sterilizing plant in the world. In it surgical dressings can be sterilized by truck-loads and by tons.

The production of gauze cloth and absorbent cotton for surgical uses in these laboratories is surrounded by exceptional conditions. The laboratories are themselves favorably situated for securing freedom from dust, dirt, isolation and cleanliness. The buildings have been constructed and fitted up for the express purpose of preparing surgical dressings therein. The operatives have been especially trained in the principles and practice of surgical asepsis. There is in use specially constructed apparatus, coupled with processes that admit of no failure in the production of sterile products. The entire service, down to the most minute detail, is governed by rigid systems of aseptic technique.

All this means that every bit of surgical material leaves their laboratory sterile and aseptic.

Good surgeons want surgically clean dressings.

Absorbent Cotton—Absorbent Gauze—made surgically clean by Johnson & Johnson cost no more than the other kind.

Surgically clean dressings please the surgeon—pay the druggist.

RED CROSS NOTES

JOHNSON & JOHNSON LABORATORIES

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ANNOUNCEMENT.

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JOHNSON & JOHNSON,
New Brunswick, N. J.

TEN YEARS OF PAPOID.

This therapeutic agent now so noted for its peculiar digestive power, is prepared from the fruit of the carica papaya. The occurrence of such a ferment as papoid in the vegetable kingdom is remarkable and its discovery has proven of great value as throwing important light upon the changes of plant life, more than all has proven of great value as a curative agent.

When Papoid was introduced into American medicine ten years ago, no one could foresee that it was to become such a necessary part of materia medica. Familiar as were its promoters with its powers and apparent value, they had no conception of the great place that has been found for it in modern medicine.

Except the occasional notice by writers in the medical journals during the past four or five years, no literature has been issued upon the subject of Papoid. Notwithstanding this, the consumption has steadily and markedly increased.

This is substantial proof of its value, and strongly attests that it is in nowise dependent upon advertising for its large sale.

Former issues of pamphlets regarding Papoid having become exhausted, it has been deemed advisable to issue this special edition of RED CROSS NOTES containing the salient features of recent literature upon Papoid.

REDUCED PRICE OF PAPOID.

The apparent high price of Papoid Powder has hitherto been the sole objection raised against its general use.

This objection has been more apparent than real, even when compared with the cheaper grades of pepsin.

The dose of pepsin is from five to ten times that of papoid, consequently papoid at $4.00 per ounce is as cheap, dose for dose, as pepsin at 50 cents per ounce.

Papoid must always be an expensive drug. It is produced in Germany solely by one maker. After years of labor the selling agents in this country are happy to announce that they have been able to secure a material reduction of the price of papoid and its preparations.

This reduction has been secured by reason of improved facilities for production, and by the consequent increased consumption.

The reduced prices are as follows:

Papoid Powder, old price $3.50 per ounce, new price $2.20 per ounce. This is a reduction of one dollar and thirty cents per ounce.

Johnson's Digestive Tablets (formerly Papoid Soda) old price $15.00 per dozen for bottles of 100 tablets; reduced price $10.00 per dozen for bottles containing 150 tablets.

This reduction in the price of the tablets is very marked. Under the reduced price 1,000 tablets cost $5.55, a reduction of nearly $7.00 per 1,000.

This reduction is made without in any measure sacrificing the high standard of efficiency for which these preparations are noted.

PAPOID DIGESTION.

By RUSSELL H. CHITTENDEN, Ph. D.,
Professor of Physiological Chemistry, Yale University.

The following is an abstract of an extended study of Papoid by the above named authority.

PAPOID ACTS ON ALL FOODS UNDER ALL CONDITIONS.

Papoid, a therapeutic agent, noted especially for its proteolytic power, is prepared from various parts of the Carica Papaya. It has the unique property of digesting all forms of proteid or albuminous matter, both raw and cooked, whether in a neutral, acid or alkaline solution.

Papoid will digest and dissolve cooked beef-proteids far more readily even than it does coagulated albumen, here again acting most energetically in an alkaline medium, under all other conditions it is less active, but a slightly acidulated medium increases its action over a neutral one.

The same observation holds true with regard to raw beef. It is important to note that raw blood fibrin (representing chemically the so-called pseudo membranes formed in diphtheria) is particularly susceptible to the action of Papoid, as 90 per cent. of this substance was digested by Papoid in 3½ hours at 110° F. Although Papoid will act in dilute solutions upon these proteids, its best and most characteristic action is seen when a comparatively small volume of fluid is present. In this it differs from animal pepsin, which requires considerable dilution for its activity to be manifest, hence the difficulty in making a direct experimental comparison between pepsin and Papoid.

Papoid exhibits marked activity in neutral solutions, and upon addition of small amounts of hydrochloric acid, its activity is very much increased. Under ordinary circumstances its activity is greatly increased by the presence of 2 to 4 per cent. sodium carbonate.

FLUIDS OF THE BODY INCREASE THE ACTIVITY OF PAPOID.

As regards the influence of the reaction of Papoid solutions upon the activity of the ferment, the presence of sodium carbonate, even in small amounts by repeated experiments, was shown to increase the activity of the ferment, while the presence of very large percentages only slightly inhibit its action. The weaker proportion of bicarbonate, however, as first stated, gives a marked increase of digestive activity. It is, therefore, evident that the alkaline and acid reaction of the fluids of the intestinal tract favor the activity of Papoid.

DRUGS DO NOT HINDER ACTIVITY OF PAPOID.

As regards the action of chemicals and therapeutic agents, the proteid digesting power of Papoid is distinctly increased in the presence of boracic acid, salicylic acid, common salt, lactic acid, acetic acid.

There is no hindrance to the digestive action of Papoid in the presence of lime water (50 to 100 per cent.), creasote or carbolic acid (1 per cent.), corrosive sublimate (1 to 1,000), chloroform, thymol, potassium chlorate, essential oils, antipyrin, acetanilide, quinine, etc.

In fact Papoid resists the inhibitory power of many drugs which o completely arrest or retard the action of animal ferments, and unlike ther digestive ferments acts under many diverse conditions.

P poid Acts at 68° and at the Boiling Point.

A study of Papoid digestion has revealed a very interesting pecu- arity of this ferment, *viz.*, great resistance toward inhibition of digestive ction by high temperature, and pronounced digestion at comparatively ow temperature.

The results of a series of experiments showed the marked activity of apoid ferment at the low temperature of 688, especially in an alkaline luid. Moreover, the maximum digestive power of Papoid is reached at .58°, which is almost as high as the temperature destructive of pepsin nd pancreatin. The retention of proteolytic power after the solution of he ferment has been actually boiled, has also been noticed as a peculiarity of Papoid.

It is obvious, therefore, that Papoid possesses special advantages in ases where it is desired to soften or digest tissue or other proteid matters t comparatively low temperatures. At the same time it is resistant to the rdinary destructive effect of high temperatures such as might be reached n application of ferments by steam atomizers or in the cooking of predi- gested foods.

Papoid Digests Milk.

Papoid seems particularly adapted for predigesting milk, the casein being converted by it into soluble and diffusible products. The action of Papoid upon milk is two fold.

1st. Under suitable conditions, it brings about the curdling of the milk, or separation of the casein. This is followed by the ordinary digest- ive action of the proteolytic ferment in which the precipitated casein is gradually converted, wholly or in part, into soluble products.

In neutral milk, the curdling takes place immediately (at temper- ature of 110° F.) but at a lower temperature, or, upon the addition of an alkali, such as sodium bicarbonate, or lime water, the curdling pro- cess is delayed. The rate of curdling, however, is not to be taken as a measure of proteolytic action on the proteids of the milk, for the two processes—curdling and digestion—are, without doubt, wholly independ- ent, and the digestion of the casein proceeds, whether in solution or after it has been precipitated by the curdling ferment. In the presence of 2 per cent. sodium bicarbonate, the digestion of casein is quite advanced before any sign of separation can be observed. In the case of predigest- ing of milk, where a small portion of Papoid is used, the necessary (or partial) digestion is accomplished without the accompanying separation of the casein, whether done at a low temperature, or at 110°, in the pres- ence of water, or after it has been made alkaline with lime water or sodium bicarbonate. It is inferred that the proteolytic ferment is present in larger quantities in Papoid than the rennet-like or curdling ferment, or else it is more active. In predigesting milk with Papoid or any other ferment, the main object sought is the partial digestion and solution of the casein, the most important proteid of milk, and at the same time it is the one most liable to cause trouble in the feeding of infants and invalids with weak digestion. Experiments upon casein, separated from fresh milk by pre- cipitation, with dilute acid, were made and it was found that Papoid would

digest precipitated casein, quite rapidly in acid, neutral and alkaline solutions. However, in the presence of 2 per cent. sodium bicarbonate or 2 per cent. lime water, upon boiled milk in which the curdling action is more rapid, the digestion of the casein is slower. In all digestions of milk by Papoid the action is apparent to the eye, the casein diminishing in amount as the digestion proceeds.

Papoid Action Upon Starch.

In addition to the two ferments above mentioned, there is present in Papoid a third ferment (amyolytic) capable of exerting decided action upon boiled starch.

In the presence, especially of sodium bicarbonate, at 110° F. starch is converted into soluble starch and the more soluble dextrines, the best results are obtained in the presence of 2 to 4 per cent. sodium bicarbonate; a neutral solution is also active, but the presence of hydrochloric acid will check its further action. In the latter case, however, the ferment is not destroyed but simply checked in its action, since upon neutralization of the acid fluids, or making the solution of alkaline, is followed by a renewal of the amyolytic action.

Papoid Digestion Identical With Natural Digestion.

All the experiments demonstrated clearly that the proteid dissolving power of Papoid is due to a genuine ferment action in which soluble products are formed, which so far as ordinary chemical reactions will show are closely akin to or identical with those found in gastric and pancreatic digestion. Leucin and tyrosin are likewise found, thus showing the resemblance of the action of this ferment to that of trypsin of the pancreatic juice.

These results warrant the statement that the power possessed by Papoid of dissolving various forms of proteid matter is dependent upon an ordinary digestive action, akin to or identical with that of the digestive ferments in general, whether animal or vegetable.

Papoid Action Not Hindered in Diseased Conditions.

In the experiments noted, it was found that by the presence of lactic acid and acetic acid in somewhat high percentages, Papoid was not to any great extent inhibited in its digestive action. This would illustrate the probable effect on the ferment of an admixture with an organic acid, such as might be developed in large quantities in the stomach, in the case of strong acidity from lactic or butyric acid fermentation.

We have also noted in this study that common salt increases the action of Papoid in liquids both with neutral and acid reaction. It very greatly increases the solvent power of the ferment also, so that the undigested residues in acid digestions by Papoid are made to some extent soluble by the aid of common salt, so that the amounts of salt ordinarily ingested with food will not have a retarding but rather accelerating effect upon Papoid action.

Our experiments have demonstrated that with a small percentage of hydrochloric acid, Papoid exhibits marked activity, and even in the presence of 2 per cent. of acid, it exhibits a fair degree of activity, which favors the assumption of the physiological action of Papoid in the stomach. They have also demonstrated that by the neutralization of the acid, the inhibi-

pry effect of the higher percentage of acid is overcome and the ferment gain springs into characteristic activity when brought into contact with an lkaline medium such as the bile and intestinal price. It is also to be oted that by the presence of certain proteid matters the action of Papoid s unaffected.

The presence of pepsin does not appear to modify the action of Papoid, nor does the gastric juice of a given acidity have any more retarding effect than acid of the same strength. In any event Papoid will certainly exhibit marked proteolytic action in the presence of 1 per cent. hydrochloric acid and pepsin, although this condition is not the one most favorable for the action of pepsin. We may, therefore, reason that in many morbid conditions, especially in disease of the stomach, Papoid is not checked in its proteolytic action. The results of these experiments also show that Papoid is active in the presence of sodium carbonate in proportion far greater than usually occurs in the secretions found in the alimentary tract. Even in the presence of 0.5 per cent. sodium carbonate, (which is the average strength of the pure pancreatic juice) the proteolytic action of Papoid is increased.

To answer the question which naturally suggests itself whether the alkaline pancreatic juice might digest and destroy Papoid and thus check its action, an artificial pancreatic juice was made and digestions made with it alone and with Papoid. The result showed that trypsin and Papoid will work together in the same solution, Papoid contributing to the digestive strength of the former.

The influence of bile was also noted and the results indicated that the presence of bile offers no obstacle to the action of Papoid in the intestinal tract.

Conclusions.

From the experiments above cited and a number of others, the following conclusions are drawn:

"1. That Papoid is a true, soluble, digestive ferment of vegetable origin.

"2. That it has marked proteolytic action in acid, alkaline and neutral solutions, and in the presence of many chemicals, antiseptics and therapeutic agents.

"3. That it has a peculiar softening and disintegrating action on proteids, and that its general proteolytic action is that of a genuine digestive ferment, similar to the ferments of animal origin.

"4. That it has a certain amount of amyolytic or starch-dissolving power.

"5. That it has a marked rennet-like action upon milk, and a pronounced digestive action upon milk casein.

"6. That it exerts its peculiar digestive power at a wide range of temperatures.

"7. That the ordinary conditions of health and disease in the stomach and intestine are not liable to check its action, while certain possible conditions may accelerate it."

PHYSIOLOGICAL ACTION OF PAPOID.

The following is a partial summary of the physiological action o Papoid as compiled from various reports

Papoid is quite harmless to either the stomach or intestines, i healthy or abnormal conditions. Although it exerts great solvent pow on dead albumen or fibrin, it shows no such influence on the living tissu of the digestive tract. Papoid is, however, more than a fibrin solvent.

When taken into the stomach, besides exercising its peptonizin action on the albuminous and fibrinous contents, it increases the secretio of gastric juice, and prevents the decomposition or fermentation of th food by virtue of its antiseptic action.

The action of Papoid, unlike that of pepsin, or of pancreatine, is no confined to one portion of the digestive tract, but is exerted with equ power throughout the whole alimentary canal.

Pepsin is only effective in an acid medium, pancreatine only in a alkaline, whereas Papoid is powerfully peptonic and peptolytic in both and is, therefore, an active digestive agent in the intestines, as well as i the stomach.

Papoid digests albumen most energetically.
Papoid acts on food as it finds it.
Papoid acts on any kind of food.
Papoid acts in all media, acid or alkaline.
Papoid acts in a small amount of liquid.
Papoid acts all the time the food is in the body.
Papoid acts at all points in the digestive tract.
Papoid acts in the stomach or in the intestines.
Papoid acts for 12 to 20 hours, under the conditions just as they exist

Comparison With Pepsin and Pancreatine.

It can be used when pepsin and pancreatine are contra-indicated o powerless.

This is the case when

(*a*) The stomach contents are too highly concentrated. Pepsin ceases to act when this obtains beyond a certain point. On the other hand, Papoid acts energetically even when the specific gravity of the stomach is very high.

(*b*) When there is a deficiency of HCl in the stomach.

Pepsin, as we know, can only act efficiently in the presence of a certain quantity of acid. Papoid, on the other hand, being independent of the presence of an acid, will do its work even better under these conditions.

(*c*) When the stomach contents are so acid that, when poured out into the duodenum, they inhibit the action of the pancreatic ferment.

As the pancreatic ferment can only act in the presence of an alkali, duodenal digestion is at once arrested and various unpleasant symptoms supervene, such as pain, flatulence and disordered bowels.

It is obviously of no use to give pancreatine by the mouth, as it is at once destroyed by the acid in the stomach. Papoid is here of the greatest use, as it is not affected as to its activity by the contact with acid, and passes through the stomach with the food into the small intestine.

1. Its action upon all the proximate principles of food makes Papoid invaluable in all ailments.

2. As regards albuminoids, it combines in itself the joint action of pepsin and pancreatine.

3. It can be given combined with acids, alkalis or antiseptics, as indicated by the demands of the case.

(*a*) It has a distinct tonic action on the secreting mechanism of the stomach, stimulating the secretion of gastric juice, while pepsin retards gastric secretion.

(*b*) It has a local sedative action, relieving pain in a marked degree, and this it does whether the pain is due to the presence of irritating ingesta or to other causes.

(*c*) It dissolves unhealthy mucus coating in the interior of the stomach which interferes with the gastric secretions and the absorption by the stomach walls.

(*d*) It is distinctly antiseptic in its action.

It thus prevents the abnormal fermentative processes from taking place in the stomach and intestines. An important point in its favor is that it can be given in conjunction with other antiseptics when necessary, without its action being in any way interfered with. This is not the case with pepsin.

4. It is not so repulsive in idea as pepsin, as it is purely vegetable.

With animal ferments prepared from stomachs of pigs and other animals, there is always a possible doubt as to the freshness or healthy condition of the material. If at all tainted they may contain bacilli, ptomaines and other toxic substances, particularly as in preparing pepsin and pancreatine it is impossible to raise the temperature high enough to destroy these without at the same time rendering the ferment inert.

Dr. Herschell summarizes the physiological action of Papoid as follows:

Papoid acts upon albuminoids, hydrating them and converting them ultimately into peptones.

Papoid converts starch with great promptness, the ultimate product being maltose.

Papoid readily peptonizes cow's milk, the resulting curds being soft, flocculent, resembling cow's milk.

Papoid emulsifies fats.

Papoid acts in all ordinary temperatures.

Papoid has a direct action upon the stomach stimulating the secretion of the gastric juice or pepsinogen.

Papoid is distinctly antiseptic in its action and prevents abnormal fermentative processes from taking place in the stomach and intestines.

Papoid can be given in conjunction with the antiseptics, such as salol, when necessary, without its digestive action being checked.

Papoid acts best in alkaline or neutral solution, but can also work in fluids with an acid reaction.

Papoid is more active when in concentrated form; pepsin requires free dilution; it can be used when pepsin is contra-indicated or powerless.

The price of Papoid has been reduced:

Former price, $3.50 per ounce,

Present price, $2.20 per ounce,

Dose of Papoid, one to three grains.

FOOD CHANGES.

The following table illustrates the changes that take place upon the ordinary food material eaten by humankind under the influence of the digestive juices of the body. It also shows the action of Papoid upon the same class of food material.

The whole affords a striking view of Prof. Chittenden's statement *that Papoid digestion is closely akin to or identical with gastric and pancreatic digestion.*

The Digestive Juices and Their Action on Food.

Digestive Juices.	*Action on Food Materials.*
SALIVA	Changes Starch into Dextrine and Sugar.
GASTRIC JUICE	Changes Proteids into Peptones in an Acid Medium. Curdles the Casein of Milk.
PANCREATIC JUICE	Changes Proteids into Peptones in Alkaline and Neutral Media. Curdles the Casein of Milk. Changes Starch into Dextrine and Sugar. Emulsifies and Partially Saponifies Fats.
BILE	Assists in Emulsifying Fats.
INTESTINAL JUICE	Changes Cane-Sugar into Invert-Sugar. Curdles the Casein of Milk.
	Changes of Food Material.
PAPOID DIGESTION	Starch Foods changed to Dextrine and Sugar. Proteids (Meat, Egg, &c.) changed to Peptones in Acid Medium. Proteids (Meat, Egg, Milk, &c.) changed to Peptone in Neutral or Alkaline Medium. Milk Casein Curdled. Fats Emulsified.

THERAPEUTIC ACTION OF PAPOID.

Dr. Woodbury summarizes the uses of treating disorders of the digestive organs as follows:

1. In actual or relative deficiency of the gastric juice, or its constituents.

(*a*) Diminished secretion of gastric juice as a whole.
Apepsia.
Anaemia and deficient blood supply.
Wasting disease.

(*b*) Diminished proportion of pepsin.
Atonic dyspepsia.
Atrophy of gastric tubules.

(*c*) Diminution of hydrochloric acid.
Achlorhydria.
Carcinoma.

(*d*) Relative deficiency of gastric juice.
Overfeeding.

2. In Gastric Catarrh.

(*a*) Where there is a tenacious mucus to be removed, thus enabling the food to come in contact with the mucous membrane.

(*b*) Where there is impaired digestion.

3. In excessive secretion of acid.
To prevent duodenal dyspepsia.

4. In gastralgia, irritable stomach, nausea or vomiting.

5. In intestinal disorders.

(*a*) In constipation due to indigestion.

(*b*) In diarrhœa as a sedative.

(*c*) In intestinal worms. (This claim the writer has not personally verified, but as the intestinal mucus which shields the worm is removed by Papoid, it is easily understood that their removal would naturally result after its administration.)

6. In infectious disorders of the intestinal tract.

(*a*) Where there is abnormal fermentation; by its antiseptic action which may be heightened by combination.

(*b*) Where there are foreign substances present, its detergent effect may be utilized in cleaning out the debris from the intestinal contents by digestion.

7. In infantile indigestion; here Papoid not only readily peptonizes cow's milk, but the resulting curds are also soft and flocculent, resembling those of breast milk.

The dose of Papoid, ordinarily, is one or two grains, but five grains or more may be used, the only objection being that of useless expense and waste except where very prompt effects are desired, in which case even larger doses of the remedy may be administered. In case of obstruction of the œsophagus by an impacted piece of meat and gristle, such as has been recently reported, a paste of Papoid and water with some soda would produce softening in a very few minutes.

The price of Papoid has been greatly reduced;

It costs no more in proportion to dose than any other ferment.

Papoid Price Reduced.

We are pleased to announce a material reduction in the price of Papoid. For some years we have been laboring to secure from the German producers, a reduction of the price of Papoid and its preparations. This has been hitherto deemed impossible without sacrificing the high standard of efficiency for which this preparation is noted. However, by improving the method of production and by reason of increased consumption we are able to announce a reduction of more than one dollar per ounce.

REDUCED PRICES.

Papoid Powder, **Old Price, $3.50 Per Ounce. NEW PRICE, $2.20 PER OUNCE.**

Johnson's Digestive Tablets. **Formerly $15 Per Dozen, 100 in Each Bottle,**

REDUCED PRICE, $10 PER DOZEN, 150 TABLETS IN EACH BOTTLE.

FORMULÆ OF TABLETS.

PAPOID—Pure	Papoid	gr. i.
JOHNSON'S DIGESTIVE TABLETS	Papoid	gr. i.
	Soda Bicarb,	grs. iii.
	Sacch. Lactis, Menth. pip.	qs.
PAPOID AND BORACIC ACID	Papoid	gr. i.
	Boracic Acid	grs. iijs.
	Sacch. Lactis	

JOHNSON & JOHNSON,

NEW BRUNSWICK, N. J.

Johnson's Digestive Tablets.

One of the first forms devised for the exhibition of Papoid was a combination of papoid with sodium bicarbonate, to which sacch. lactis was added as an excipient and mentha piperta as a flavoring and corrigant, the whole made up in the form of a tablet. These tablets at once gained favor with the medical profession, they have been universally prescribed and endorsed; in fact to the usefulness of this particular preparation is due the remarkable success of Papoid. Finding that other combinations of Papoid in tablet form were dispensed when this article was desired, thus causing great confusion, annoyance and disappointment, we have dropped the former name (Papoid and Soda Tablets) for the designation, Johnson's Digestive Tablets.

Johnson's Digestive Tablets are made according to the following formula:

JOHNSON'S DIGESTIVE TABLETS.....	Papoid	gr. i.
	Soda Bicarb.	grs. iii.
	Sacch. Lactis, Menth. pip.	qs.

Dose—1 to 3.

Johnson's Digestive Tablets are agreeable to the taste.

They are the most active form in which the ferment can be dispensed.

They are convenient to carry, the dosage is accurate, can be given in divided doses at such intervals as may be desired.

Johnson's Tablets taste pleasant, may be swallowed whole, chewed or dissolved in the mouth, as may be desired.

The advantages of the administration of this ferment in the form of Johnson's Tablets are very apparent.

Johnson's Digestive Tablets are this size, each tablet being stamped as shown in the cut.

Johnson's Digestive Tablets are put up for physicians' use and for dispensing, in bottles containing 150 tablets.

The Prices of Papoid Preparations Have Been Reduced.

Johnson's Digestive Tablets, Former Price, $1.25 for 100.

NOW $10 PER DOZEN BOTTLES, EACH CONTAINING 150.

THERAPEUTICS.

The literature of Papoid and Johnson's Tablets is very extensive, somewhere from three to five hundred articles having appeared in medical and scientific journals, text books, standard works on therapeutics, etc. From these various sources the following condensed list of indications have been taken. The indications here given are those which have been established by usage and actual practice.

The principal authorities quoted are as follows:

R. H. CHITTENDEN, Ph. D.,
Prof. of Physiological Chemistry in Yale University, Director Physiological Laboratory Columbia College.

DR. I. N. LOVE, M. D.,
Ex-Chairman Section of Pædiatrics, American Medical Association.

FRANK WOODBURY, A. M., M. D.,
Prof. of Clinical Medicine in the Medico-Chirugical College, Phila.; Chairman of Section on Materia Medica and Pharmacy in the American Medical Association, Fellow of the College of Physicians of Philadelphia, Member of Academy of Natural Sciences, etc., etc.

HOWARD LANKESTER, M. D.

THOMAS K. MORTON, M. D., Phila., Pa.

DR. O. A. HYDE, New York.

L. M. WRIGHT, M. D., New York.

ROBERT T. MORRIS, M. D., New York.

C. A. EWALD,
Extraordinary Prof. of Medicine at the University of Berlin, etc.

W. W. RICHMOND, M. D.

ABRAM LIVEZEY, M. D., Yardly, Pa.

W. B. WEST, M. D., Fort Worth, Tex.

A. M. OWEN, M. D., Evansville, Ind.
Ex-Pres. Miss. Valley Med. Ass'n, Treas. Pan-Amer. Med. Congress, etc.

A. J. PARK, M. D., Chicago, Ill.

ARCH DIXON, M. D., Henderson, Ky.,
Pres. Kentucky State Medical Society, Ex-Pres. Miss. Valley Med. Association, Member Southern Surgical and Gynœological Association, etc., etc.

R. J. FRITZINGER, M. D.

J. H. KELLOGG, M. D.

R. ST. JOHN PERRY, M. D.

CURTIS M. BEEBE, Chicago, Ill.

DR. S. H. PLATT,

DR. JOHN AULDE.

DR. FRADERICK M. DEARBOME, U. S. A.

DR. A. BURNSIDE,

PROF. R. H. RUTTAN,
McGill University.

DR. H. GEROULD,

DR. R. C. ATKINSON,

DR. J. F. LYDSTON, Chicago,

DR. WILLIAM C. WILE,

DR. ROBERT T. MORRIS,

DR. S. FRITZENBEGER,

DR. E. A. WOOD,

DR. A. F GREEN,

DR. MCKENZIE JOHNSTON,

DR. R. C. M. PAGE,

DR. W. F. HUTCHINSON,

DR. C. H. SEIBOLD,

PROF. T. M. CALSER,

DR. W. S. RICKARD,

DR. JAMES H. ELBENDGE,

DR. A. J. PARK,

DR. JOHN A. LANABEE,

DR. W. M. NELSON,

DR. J. LOUIS SMITH,

DR. E. A. SCHULTZ,

DR. A. A. YOUNG,

DR. ALFRED K. HILLS,

DR. B. VAN D. HEDGES,

DR. F. C. HEATH,

DR. JOHN L. HEFFRON,

DR. F. T. FIELD,

DR. P. H. THOMTON,

DR. J. L. VAN ZANDT,

DR. B. A. MASSIN.

Achlorhydria.—"Papoid is specially useful where there is indigestion due to deficient secretion of gastric juice or of hydrochloric acid (achlorhydria). The administration of an alkaline solution of Papoid favors gastric digestion both directly and indirectly: by digesting albuminates and softening masses of food, and by the action of the Papoid in stimulating the secretion of the Pepsin gland, while the alkali induces the secretion of a more acid gastric juice; it retards the fermentation of the undigested masses of food in the stomach and prepares them for intestinal digestion." One dose of Johnson's Tablets just before eating to be followed by another after, to relieve pain and distress.

Acidity of the Stomach.—Temporary hypercidity may be overcome by washing out the stomach so as to remove the offending fermenting materials, or prompt relief may be afforded by Johnson's Tablets, one or two with some aromatic spirits of ammonia. In excessive acidity of the gastric secretion requires dietic and hygenic treatment. The use of hot water half an hour before meals with one of Johnson's Tablets will give satisfactory results. In certain cases of great acidity larger doses are necessary.

Acidity of the Stomach in Pregnancy.—(See also vomiting). Johnson's Tablets will relieve the discomfort at once, and should be given in hotl water half an hour before meals.

Anæmia.—In feeble digestion frequen feeding is the rule, and one of John son's Tablets after each meal wil often afford striking relief. Where there is distinct anæmia, papoid may be given in conjunction with reduced iron and quinine; and in cases of atony of the stomach and dilitation with strychnine.

Asthma.—The administration of Johnson's Digestive Tablets before meals will keep the stomach free from mucus, and keep it in the best condition for the performance of its functions.

Atonic Dyspepsia.—(See also Dyspepsia). It is in atonic dyspepsia perhaps that Papoid and Johnson's Digestive Tablets finds its most striking application. The deficiency in the natural secretions forms the occurrence of fermentation, flatulence, heartburn, pyrosis and the other well-known symptoms of imperfect digestion. The administration of Johnson's Digestive Tablets before meals will clean the mucus surface and at the same time stimulate the peptic glands to increased secretion. To relieve an attack of acute indigestion one Johnson's Tablet given with hot water will afford marked relief. In the impaired digestion attending acute diseases such as pneumonia, experience has shown the usefulness of this digestive agent. Dr. Myron T. Cooley reports a case of pleuro-pneumonia in a boy in which the following appears: "The effect of the sickness, which had been unusually severe and telling, was to weaken him to such an extent that his life was despaired of. It was indeed a difficult matter to get his food to digest at all for a while, but Papoid in grain doses, taken every time food of any character was ingested soon corrected this." It is the opinion of a number of reporters that in the weakened digestion of alcoholic subjects, Papoid is of the highest value. In acute catarrhal conditions following the free indulgence in the pleasure of the table, Johnson's Tablets are unsurpassed in efficiency.

Alcoholic Catarrh.—Take one Tablet on rising, sipping a tumblerful of hot water. After lunch and dinner take one Tablet in a little water, quarter of an hour after eating.

Catarrh—Gastric, Chronic.—Abstinence from irritating articles of food and drink is to be enjoined, and a strict diet of milk is the most direct method by which this may be attained. Dr. Thos. Gillovton's method of administering milk is to give a tablespoonful of milk every hour and a half during the first day between the hours of 7 A. M. and 10 P. M., increasing the dose by half an ounce each subsequent day until the maximum amount of two or three quarts is attained. This is to be kept up for from three to five weeks, and the usual diet then only gradually resumed, using one of Johnson's Tablets at intervals of three or four times a day. For children good results have been obtained in the gastric catarrh of infants by washing out the stomach with weak antiseptic solutions of borax and water. In many cases, however, Johnson's Tablets administered in the intervals of feeding will give equally satisfactory results. "If the secretion of abnormal mucus in the stomach is excessive, it is well to give the hot, alkaline water half an hour before meals, and one Johnson's Tablet immediately after eating. Papoid is harmless to the healthy stomach, and being of

vegetable origin, is free from organic ptomaines. In acid dyspepsia it may be given in more frequent doses."

Chronic Gastritis, Chronic Catarrh of the Stomach, Chronic Dyspepsia.—Papoid has a distinct tonic action on the secreting mechanism of the stomach stimulating the secretion of gastric juice. In the form of Johnson's Tablets it has been found most beneficial and particularly indicated when an acid condition of the saliva is excessive, and diastasic action weak. In this form the it has a prompt diastasic action upon starch foods, which is not hindered by the acid condition of the saliva or gastric juice, but continues during the entire digestive period. To stimulate glandular activity, the toilet of the stomach is very important. This may be accomplished by dissolving one tablet in water, and take one half hour before meals. If there should be a tendency to morning sickness while dressing, the patient should take one tablet, then sip slowly, not drink, a tumbler of very hot water. In some cases this may be repeated some hours after the last meal. In vomiting, one tablet taken in effervescing mineral water, or plain soda, often gives immediate relief. Ordinary dose, one or two tablets at meal time.

Catarrh—Gastro-Intestinal.—In the chronic form which frequently results from the constant use of highly seasoned foods and drinks, in the morning vomiting of drunkards, accompanied by a secretion of mucus, and in other forms of this disorder, these tablets have met with success in the hands of the best practitioners. Where there is much mucus, the stomach should be washed out with vichy water in which one tablet has been dissolved. The weak digestion may be aided by the administration of one tablet after each meal. In mild cases one tablet should be given before meals, to digest the mucus and prepare the stomach for the function of digestion. Where there is irritation following the meal, one tablet at meal time, or one tablet before and one tablet an hour after each meal.

Catarrh of the Bladder.—Papoid assists the action of the antiseptics and digests decomposing masses of epithelism and mucus which otherwise might develop into concretions. Papoid in the form of the glycerole may be added to the fluids used for irrigating the bladder, or may be introduced previously in order to secure the digestion of any organic material which may be present. The well-known healing power of Papoid when applied to ulcers on the surface of the body, leads to the belief that it would also assist in healing any abrasions or ulcerations in the cavity of the bladder.

Chlorosis.—Proper articles of food must be insisted upon, followed by Johnson's Tablets to ensure their digestion. If small quantities of food can only be taken, the periods of feeding should be more frequent. A milk diet for a few weeks will often render great service. Johnson's Tablets are especially useful in digesting the casein of the milk, and thus preventing constipation.

Cholera Infantum.—Papoid has the great advantage of destroying putrefactive substances, and moreover is not itself interfered with by antiseptic agents, which it may be desired to administer. Where there is intestinal indigestion and irritation in infants with green slimy stools, Johnson's Tablets have a prompt effect. One of the tablets may be dissolved in two tablespoonfuls of boiled water, and a teaspoonful administered every fifteen minutes.

Constipation.—Especially when caused by insufficient digestion of solid portions of food, as in the case of infants where the bulk of faecal mass consists of casein. Dose for adult, one tablet before meal, to be repeated two hours later if flatus occurs. For children, one-quarter to one tablet.

Cholera Morbus.—A dose of one or two tablets will often bring relief in digesting the fermenting poisonous mass of undigested food and stimulating the impaired digestive function. During convalescence the weak digestion will be greatly assisted by systematic and regular doses. One tablet in water will often relieve vomiting.

Colic.—Johnson's Tablets added to food or taken with meals will produce good routine treatment to aid digestion. Dose for adults, one to two tablets; for children, one-half tablet three times a day in water or with food.

Diarrhœa—Acute, Chronic.—The success of Papoid in these troubles is due to the action of Papoid on the unhealthy mucus on which its solvent action is continuous. These tablets will aid in relieving the intestinal tract of irritating material and improving the weakened digestion. Dose: one tablet every four hours. In Chronic Diarrhœa, one tablet taken

an hour before meals, accompanied by the use of farinaceous foods and abstinence from animal diet.

Digestion—Feeble.—With properly selected articles of food and the assistance of the digestive powers of the ferments contained in these tablets, victims of atonic dyspepsia and feeble digestion may escape many inconveniences to which they are otherwise subject. One tablet to be taken before meals or with the food.

Diphtheria.—Raw fibrin is particularly susceptible to the action of Papoid, both in a neutral and acid solution. This is suggestive in view of the fact that raw blood fibrin probably comes nearest chemically to the so-called pseudo membranes. such as are found in Diphtheria, etc., and hence we might fairly draw the conclusion that the pseudo membranes would be attacked by Papoid with equal facility.—CHITTENDEN.

Used at intervals of one, two or three hours, as may be desired, according to the extent of the deposit which we may desire to remove. The same should be made into a paste with a small quantity of water, and applied with a fine camel's hair brush. I have found this product very satisfactory as a destroyer of the membrane. An additional advantage of this application is that such parts as may be swallowed will serve to help nature to digest whatever food there may be in the alimentary canal. This is not an unimportant point, and right here, in order to emphasize the importance of nutrition, we suggest that in the beginning of the treatment the alimentary canal should be properly emptied and placed in the best possible shape for the securement of nutrition; the greatest enemy to the Klebs-Loffler bacillus, or any other, is well-nourished blood. Insist upon an abundance of nourishment from the start, food that is in a form ready to be promptly assimilated. We will not go far wrong if during the progress of our case we give from one to two grains of Papoid just referred to, either in the form of a powder, in a capsule, in solution, or it may be mixed with a little powdered chocolate and sugar and taken as a bon-bon. Given in this way it serves to help the digestive apparatus in the important work that is before it.—I. N LOVE.

As a local application:

℞ Papoid.....oz. j.
Sal-lister.....oz, jj.
Mix.
Sig. Blow x grs. in throat every two hours with glass tube.

Out of a record of forty cases treated as above thirty-five recoveries followed and gladdened the hearts of as many households."—CULVER.

℞ Papoid.....grs. 10
Aq.....oz. ½
(Make the solution fresh.)
Or
℞ Papoid.....drs. 2
Beta naphthol.....grs. 3
Acid Hydrochl. dil..gtt. 15
Aq. Dest.....,oz. 4

Either of these should be applied every twenty minutes until the desired effect is had

I have used the following: Papoid, one drachm; Glycerine, 2 drachms, and Acid Carbolic, drops four. This mixture remains stable. The throat was thoroughly painted over every two hours with a mop made of absorbent cotton twisted upon a small twig, each mop being burned immediately after using. Constitutional treatment was kept up as well. Recovery was prompt and uninterrupted. Of course there are malignant cases of diphtheria which go on and die promptly, no matter what treatment one may employ, but with an experience extending over fifteen years, I have found nothing in the treatment of this dread disease so satisfactory as Papoid.—DIXON.

℞ Papoid.....grs. 60
Glycerine.....drs. 4
Water.....dr. 1
M. Apply with a brush.

Digestion of Starch Foods.—For the digestion of starch food, Papoid may be given at meal times, either immediately before or with the food. When the intestinal digestion is at fault, it should be taken an hour or so after meals. It may be conveniently added to starch food at the time of eating, mixing it directly with the food, such as rice, blanc mange, oatmeal, gruels, etc. It should be added to the foods while they are warm, but not when they are boiling hot. In this way the tablets are especially serviceable in aiding the digestion of starch for children. Johnson's Tablets should only be added to starch food that is to be eaten at once; it should never be put away for subsequent use.

Digestion of Milk.—These tablets are of considerable value in aiding in the digestion of milk. The tablets may be added just as the milk is to be drank, as the ferment will continue to act all the time the milk is in the body.

Dyspepsia, Acute and Chronic—"Although some of our compilers of text-books object to the title "dyspepsia," and consider the condition as merely a symptom of various disordered states of the stomach and intestinal tract, the most prominent being gastric or gastro-intestinal catarrh, yet dyspepsia will hold its position in the language of medicine and in popular

speech, as a synonym for difficult, painful and imperfect digestion."—WOODBURY. Papoid is the chief among the modern remedies in the treatment of dyspepsia. The method of its use is best illustrated by actual reports of cases one of which by DR. ABRAM A. BROWN gives the following interesting report of cases which illustrates the value of Papoid in a striking manner:

Perhaps as marked a case of *post hoc propter hoc* was one of an old lady who came to me last year from the practice of Dr. Church, of Warren, R. I. She was in a pitiable condition of nervous exhaustion from long-continued dyspepsia, irritable at times, melancholy and much emaciated. Her back was so tender to touch that she could scarcely bear clothing pressure, as was also the lower abdomen. No food tasted good, very little was taken and that distressed her. Tongue and fauces of brilliant scarlet. Careful examination revealed nothing abnormal in thorax or pelvis, urine healthy, except from quantities of ammonia urate. A month of careful thorough electrical treatment was negative, and I placed her upon a combination of Papoid, Sodii bi-carbonate (Johnson's Tablets), with a carefully regulated diet, abandoning even the liquid form of meat previously allowed, and substituting cereals. A dose was given every three hours, and some sort of porridge every two hours, recumbent posture enjoined. Improvement began at once. Bowels grew regular, strength commenced to return and in four weeks more Mrs. C. was another woman. Abdominal and dorsal pains, result of bowel distension, had disappeared. She could walk a little, and the tongue grew more natural in color. Still, food was repulsive, and emaciation progressive. So the bismuth was replaced with 1-100 grain portions of strychnia, and electricity resumed. Curiously enough, she would not bear either galvanism or static baths well, while an induction current of high speed from a fine wire with the singing rheotome never failed to do good, the temporary improvement being striking. With this management she gained rapidly in strength, so that long drives were possible and some other open air work. Solid food was then cautiously administered and digested. Mrs. C. was doing well when hot weather set in, and she left for the shore to try sea air and quiet rest.

"In this instance it is no more than fair to credit Papoid with the marked improvement observed. Its action was prompt, continuous and steadily beneficial after other digestive ferments had failed. It is in just such cases of atonic mal-digestion where the whole tract needs physiological rest, that Papoid steps in, takes the work and gives a chance for remedies to work that are directed to general conditions."

The late Dr. Wm. V. Hutchinson gave the following very interesting account of his personal experience with Papoid when he was emaciating rapidly and was threatened with chronic invalidism:

"For two years I had been victim to constant pain in right flank and back, sufficiently severe to debar walking for any distance, occasionally enough to keep me awake of nights, never quite absent, always nagging and depressing.

"My physician could not tell what was the matter. Appetite excellent, bowels regular, no flatulence, tongue clean and pulse rate normal. Yet I steadily lost weight and strength until I seriously debated the probability of appendicitis in a chronic form and the dismal project of a dubious surgical operation.

"Every form of digestive ferment had been tried and abandoned, there being no apparent indication for their use. The case grew worse, until at last Dr. Wile's article in the *New England Med. Monthly* came to me, and in answer to a note of inquiry he referred me to the makers who kindly sent a supply of tablets of Papoid, Soda-bicarbonate (Johnson's Tablets) for experiment. The way was long and hard, requiring various combinations of the remedy, but perseverance met with reward and to-day there is nothing left of the long-standing pain, no appendicitis, no nothing, as the boys say. The case was one of obstinate colic indigestion which everything but Papoid failed to reach. A month or so ago a gentleman consulted me for obstinate diarrhœa with tenesmus and a little blood, I ordered him Papoid and Soda tablets (Johnson's Tablets), one every three hours, with rest and a diet of bovinine and milk. In twenty-four hours he was well.

"Since then I have used it daily and am satisfied that in a large majority of cases requiring a digestive ferment it fills every demand."

Faulty Nutrition.—Faulty nutrition is the sense of imperfect digestion and assimilation, is the cause of many disorders that are perplexing and difficult of diagnosis, and proper treatment directed to a perverted condition of the alimentary function will often cause apparently alarming symptoms to disappear with a surprising quickness.

"This fact was very forcibly exemplified to me by the symptoms nd the treatment of the case of B. He had intense pain at irregular intervals in the right hypogastric region for over six months, and when I first saw him the pain had become localized and fixed although somewhat paroxysmal in its nature, and his face had the pinched and

anxious appearance so often symptomatic of serious abdominal lesions. Decided febrile symptoms were present, significant of inflammatory complications. In fact, all the symptoms seemingly indicated appendicitis, aggravated by neglect if not positively injurious treatment. But it is only the treatment which I wish to emphasize, which consisted of the administration of Johnson's Tablets, one after meals; afterward with the addition of one-sixth of a grain of calomel, resulting in the relief of the pain in the course of an hour after the first dose, nor has the patient suffered the slightest pain or any inconvenience whatever since."—Dr. A. Millan.

Fermentation.—(See Gastric Catarrh). One dose Johnson's Tablets should be given just before meals, or one-half tablet may be given before meals and the remainder during its progress.

Flatulence.—The cause of which is often fermentation of the stomach, may be relieved by the administration of one tablet before meal time to overcome the fermentation. At the same time the digestion may be assisted by a dose of one or more after each meal.

Gastralgia.—Gastralgia may sometimes be relieved by taking food such as water, crackers in a glass of hot milk. Carbonated drinks as champagne, vichy water or a light beer are more efficient. To overcome any irritation in the stomach one Johnson's Tablet given in a wine glass of hot water to be repeated every hour until relief is obtained.

Gastric Catarrh, Acute (of children.)—See Catarrh, Gastric and Gastro-Intestinal.)

Gastritis—Acute, Gastric (adults.)—(See Catarrh, Gastric and Gastro-Intestinal.)

Headache Due to Indigestion.—Frequently caused by gastric disorders, such as fermenting food in the stomach, constipation, over-indulgence in food, insufficient assimilation. The vegetable ferment will assist the weak stomach to perform its functions without causing distress, and by improving nutrition, the anæmic headaches will often disappear. Dose, one tablet at meal time; to be repeated, if necessary, one hour later.

Intestinal Parasites.—Johnson's Tablets will greatly assist in the removal of these pests by digesting the protecting shield of mucus. Dose, six to ten tablets two hours after each meal.

Sea-Sickness.—One tablet dissolved in plain soda, or vichy water, often affords a ready means of overcoming and preventing sea-sickness.

Tattooing, Removal by Papoid.—The method may be briefly outlined as follows: The tattooed part from which it is desirable to remove the markings is, first of all, carefully washed with soap and water. Then a bunch of needles previously prepared, containing from six to ten very fine cambric needles tightly wound with silk thread, is dipped in a glycerine solution of Papoid five per cent., and driven with a sharp blow into the tatooed part. This is repeated over the entire stain. In fact, it is a tattooing with the glycerole of papoid. It goes without saying that this tattooing must be thorough or but an imperfect result will be obtained, on account of the depth at which the pigment is found. I have found it necessary, as a general rule, to go over certain parts a second time in order to obtain a good effect. *A peculiarity in reference to this is that the process does not bring about the swelling or inflammatory reaction observed in tattooing with India ink or other pigments.* This is probably due to the fact that, in the first place, the glycerole of papoid is not so irritating; and, in the second place, no buccal mucus is mixed with it, a habit which is not only filthy but dangerous, inasmuch as it may transmit syphilis, as has been observed in many instances. Not only this, but the micro-organisms of the mouth may act deleteriously by inducing septic conditions of greater or less virulence. The rationale of the method is one which appears to me to be about as follows: The digestive principle of the papoid is disseminated about the deposit of pigment, thus liberating it. A portion is absorbed, in a finely divided state, by the lymphatics; another part probably finds its way into the upper layers of the epidermis and thence to the surface. In this manner we obtain a disappearance of the pigment.—DUMESNIL.

Stomatitis.—The diet exercises an important influence in the causation and relief of stomatitis. The food should be of a bland character, and a milk diet is often useful. Papoid digests casein and aids nourishment by keeping the intestinal tract in a healthy condition and obviating a tendency to constipation.

Vomiting.—Papoid is a useful gastric sedative and by digesting mucus and initiating articles of food assists in overcoming nausea. Vomiting caused by indigestion may be prevented by giving one Johnson's Tablet before or during the meal.

Johnson's Belladonna Plaster.

Its superiority lies in the selection and handling of the Belladonna root; the proper extraction of its principles, the combination with a mass that holds these principles in soluble, absorbable form. The addition of Boracic acid and sorbefacient gums, which act as mild detergents upon skin secretions, dissolve clogging matters in the skin pores and aid absorption.

• • •

Johnson's Belladonna Plasters have been adopted by hospitals and many thousands of physicians as *the standard Belladonna Plaster*, and one that gives more pronounced uniform action than any other make.

• • •

"I am greatly pleased with JOHNSON'S BELLADONNA PLASTER. I find it gives *quicker and better effect than any other* I have hitherto used."—DR. D. H. AGNEW, University of Penn.

"JOHNSON'S BELLADONNA PLASTERS have met with approval. An improvement has been made in the addition of Boracic acid to the plaster base with a view of opening the skin pores and enabling the drug to be absorbed."—*Brit. Med. Journal.*

"After a careful test of JOHNSON'S BELLADONNA PLASTERS in the the Philadelphia Hospital for Skin Diseases I find an *increased action and more immediate effect.*"—JOHN V. SHOEMAKER, M. D.

• • •

Johnson's Belladonna Plasters took the highest medal and diploma at the World's Fair for "Excellence, Uniformity and Efficiency."

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JOHNSON & JOHNSON,

New Brunswick, N. J., U. S. A.

Kingstone Catheters and Bougies.

THE Kingstone products are the outcome of two generations of skilled labor applied to the production of perfect urethral instruments. They have received the patronage and commendation of Mercier, Foucher, Dolbeau, Guillon, Sir Henry Thompson, and others eminent in genito-urinary surgery. They have been given the highest awards ever bestowed upon instruments of this class, including the Bronze Medal, Exposition Universal, Paris, 1867; Silver Medal, Exposition Lyons, 1872; Grand Medal for Progress, Exposition Vienna, 1873.

They have been adopted and highly endorsed by the hospitals of Paris, receiving a part of the Barber Prize from the Faculty of the Academy of Medicine. The Argenteuil Prize from the Academy of Medicine, of Paris, was also awarded for excellence of manufacture.

DR. J. W. S. GOULEY, Surgeon to Bellevue Hospital, author of "*Diseases of the Genito-Urinary Organs*," says of them:—

"The Catheters and Bougies manufactured at the Kingstone establishment are fully equal to the best instruments ever made in Paris."—*New York Medical Journal, 1893.*

The eyes of the Kingstone Catheters are all woven, specially strengthened and stayed, smoothly finished. The ends are firmly stayed.

The coatings are made of elastic, pliable gums, carefully selected and prepared; laid on uniformly with a durable, velvet-smooth finish.

From four to six months' time is given to the coating and curing processes.

The Kingstone Catheters are elastic, pliable, springy, yet firm from end to end.

The Kingstone Catheters will not collapse or become soft and sticky.

The Kingstone Catheters and Bougies resist the action of lubricating substances, antiseptic solutions, urinary and tissue fluids.

They are not impaired by sterilization

An illustrated monograph, giving kinds, sizes and shapes, with suggestions for the care of Catheters and Bougies, will be sent upon application.

JOHNSON & JOHNSON,

New Brunswick, N. J., U. S. A.

A FAMOUS EXPERIMENT.

Some time ago Dr. Frank Woodbury, in attempting to digest different food stuffs with papoid, found that it converted albumoids into peptones, converted starch into dextrines and maltose and that it emulsified fats.

First as a curious experiment, and afterwards to graphically portray the remarkable varied powers of Papoid, the doctor placed in a tube representatives of all the foods that go to make up a hearty American dinner, such as roast beef, peas, beans, fried sausage, dried beef, codfish, cheese, mince pie, potatoes, crackers, fish, lobster, mixed cake, etc., after adding a little water in which had been dissolved one or two of Johnson's Tablets, the tube was placed in water and kept about body temperature for three hours. Dr. Woodbury said: "The result was very satisfactory, indeed. The meats rapidly softened and the other ingredients rapidly disintegrated, forming a pultaceous mass, which finally separated into grumous sediment and an overlying dark colored liquid."

These two tubes have since attained celebrity by being used to graphically illustrate the digestion of food, appealing as they do to the senses more emphatically than would pages of chemical and physiological figures. The experiment, though crude, is a striking summary of Prof. Chittenden's exhaustive report on Papoid, wherein he demonstrates that

"Papoid has a marked proteolytic action upon both raw and cooked proteids.

"That it has a peculiar softening and disintegrating action on proteids, its action being identical to the ferments of the human body.

"That it possesses a starch dissolving power.

"That it has a rennet-like action upon milk casein."

Prof. Chittenden's results taken as a whole are much more startling than Dr. Woodbury's.

But as they are clothed in the language of the physiological chemist, it does not appeal to our understanding so persistently as do the "two tubes of mixed food."

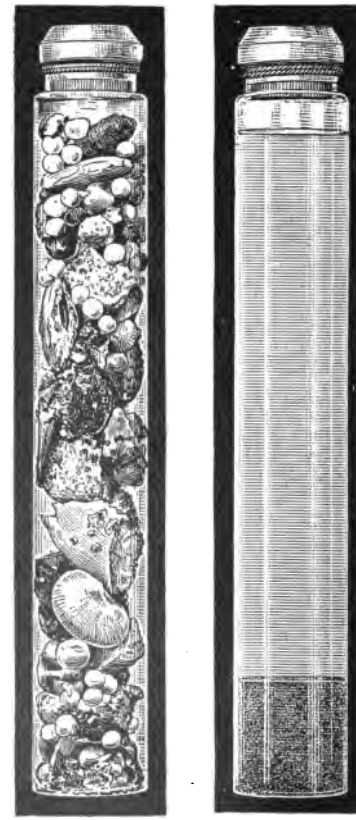
THE FAMOUS EXPERIMENT.

Digestion of Mixed Foods.

No. 1. No. 2.

This tube (No. 1) contained:

Cheese,
Mince Pie,
Mixed Cake,
Tapioca,
Roast Beef,
Fried Sausage,
Lima Beans,
Peas,
Wheat, Rye, etc.
Graham Bread.
Potatoes,
Dried Beef.
Codfish.
Crackers,
Salmon and Lobster.



This is the same tube (No. 1) after the contents (mixed food) were digested by *Johnson's Digestive Tablets.*

B.

RED CROSS NOTES

BOSTON MEDICAL LIBRARY JUN 24 1898 COPYRIGHTED 1898.

No. 11. NEW BRUNSWICK, N. J. 1898.

ANNOUNCEMENT.

These leaflets are issued monthly supplementary to our monographs, booklets and other publications.

The issues are sent without cost to such persons as we may be able to reach through the regular channels of trade and correspondence

Those who desire to receive the RED CROSS NOTES regularly must send a request to this effect.

JOHNSON & JOHNSON,
New Brunswick, N. J.

INTERESTING ITEMS.

	Page.
Cutting Out a Stomach	2
Killing Germs by Steam	10
War Talk	14
Ready for War	15
Market Gauze	17
Bacteriological Tests	18
The Wounded in Naval Warfare	19
Gun-shot Wounds	24

The next issue of Red Cross Notes will be of special interest.

To receive every issue of these Notes send your name with a request to that effect. They are sent without cost to the recipient.

"Surgically clean dressings are so important, are of such vital necessity in present day wound treatment that the maker and dealer who can and will supply the profession with such as are known to be aseptic in name and in fact, is worthy of the greatest praise—and patronage.—Dr. W. O. Edwards.

CUTTING OUT A STOMACH.

The story of the modern surgeon and the miracles wrought with his knife and scissors has been likened unto the tales of the Arabian Knights.

Among the many marvelous operations performed in these days of asepsis and antisepsis, none have attracted more attention than the operation of excision and the removal of the entire stomach, which was recently performed by Dr. A. C. Bernays of St. Louis, Mo. The importance and interest manifested in this (one of the greatest surgical operations of the age) has been deemed sufficient to warrant its rehearsal in the RED CROSS NOTES.

In these pages are given the full history and diagnosis of a case of carcinoma of the stomach for the relief of which the operation was performed. The details of the technique were written by Dr. A. C. Bernays and Summa. While this first operation in America terminated unfortunately, the results of the information gained will be of the greatest value to the profession. Dr. Bernays says:

"The next case of removal of the entire stomach that I will perform will result in a cure. I have learned a great deal by the first experience, and I believe that the operation will become as safely and surely a legitimate surgical operation for the treatment of cancer of the stomach, as the removal of the womb or of the female breast for cancer of these organs now is."

It affords us great pleasure to be able to place the particulars of this important operation before the entire medical profession who will, no doubt, join us in congratulating Dr. Bernays, and thanking him for his frankness in giving his fellow surgeons the benefits of his experience.

THE FIRST OPERATION OF EXCISION OF THE STOMACH IN AMERICA.

The History and Diagnosis of a Case of Carcinoma of the Stomach.

THE OPERATION OF EXCISION.

BY HUGO SUMMA, M. D., AND A. C. BERNAYS, M. D.

HISTORY OF THE CASE AND DIAGNOSIS.

By HUGO SUMMA, A.M., M.D., Professor of Pathology and Clinical Medicine at the Marion-Sims College of Medicine, St. Louis, Mo.

The patient was Mr. Conrad Beck, 42½ years old, a German, machinist, married, and the father of four children. The anamnesis shows a very good family history. The patient's mother is still living, while his father died of senile marasmus. All of his brothers and sisters are in good health and there is no inclination to diseases of the stomach in any member of the family.

The patient has always enjoyed good health, with the exception of an attack of measles when a boy. Does not remember any trauma, either in the region of the stomach or in any other part of his body.

In the early part of June, 1897, the patient noticed pain in the region of the stomach, particularly severe soon after eating, and also a somewhat impaired action of the bowels amounting to constipation. Both of these symptoms appeared somewhat abruptly. About three weeks afterward, on June 25, 1897, he had four gastric hemorrhages within a day and a-half. The blood was light red without admixture of air. Dr. Louis H. Davis, who attended him at that time, estimated the amount of blood lost at one and one-half gallons. In the early part of July, I was consulted for the first time in the case. The symptoms at that time were chiefly subjective. He complained of pain, which was increased during digestion, in the region of the stomach, and also of pain on pressure near the junction of the cartilages of the eighth and ninth ribs of the left side. There was at no time an impairment of the appetite nor any vomiting, but there was obstinate constipation. No tumor was visible or palpable.

After a thorough deliberation, in which the differential diagnosis between cancer and round ulcer was carefully considered, a decision in favor of round ulcer was made and Leube's treatment was instituted. The

severe hemorrhages preceding the first consultation seemed to preclude the investigation of the case by means of test meals. It was a reasonable expectation to clear up the diagnosis *ex juvantibus* by the Leube treatment, but this proved to be the misleading feature and for three months obscured the clinical observation of the case. Leube himself lays great stress upon the value of his method of treatment as a means of confirming a doubtful diagnosis of *ulcus rotundum;* in fact, he says that the favorable result of the treatment justifies a conclusion in favor of the positive existence of an *ulcus rotundum.* Boas considers the same conclusion justifiable when his method of treatment is beneficial in the same kind of a case. His treatment consists in gradually increasing doses of nitrate of silver. This method was applied after the case was turned over to my exclusive supervision, in November, and was followed by even better results than Leube's treatment, which had undoubtedly benefited the patient during the months of July and August.

After a second consultation in September, Fleiner's treatment was tried, because on account of the beneficial results obtained by Leube's treatment we were under the impression that the case was one of round ulcer. The Boas treatment, which was tried in November, was followed by the most encouraging improvement, but December 24 a gradual recurrence of the old symptoms was noticed.

It now seemed justifiable to risk the introduction of the stomach tube and this was done every day for two weeks beginning December 26. Through the tube, Ewald's test-breakfast or Riegel's test-meal was expressed for the purpose of gaining a knowledge of the motor, secretory and digestive functions of the stomach.

The result of these gastranalyses was always the same. The total amount expressed never exceeded 20 c.cm. Free hydrochloric acid was never present, nor was there any lactic acid. The total acidity varied between 10 and 20 per cent. Yeast fungi and sarcinæ were absent and only very few bacteria were found by microscopic examination. Remnants of meat and starch, well advanced in digestion, occurred and red and white blood corpuscles were found in the same relative proportion as in the blood in each specimen of the stomachic contents that were examined microscopically. Toward the end of the expression of the contents, a very slight hemorrhage was noticeable macroscopically but no trace of tissue could ever be detected.

After carefully weighing the symptoms that presented themselves in this peculiar case there were left three points that appeared more in favor of carcinoma than of ulcer. These were permanent absence of hydrochloric acid, no vomiting and the age of the patient, while the remaining symptoms could be explained as well under the assumption of ulcer as of carcinoma.

The patient had lost twenty-seven pounds in weight during seven and one-half months. There was a cachectic appearance gradually becoming apparent, while the anemia seemed to be disappearing when judged by the visible mucous membranes.

Based upon these carefully observed facts a final diagnosis was made of ulcerated cancer of the stomach located between the cardia and the pylorus. The patient was then sent to Prof. Bernays for an explorative section with a view of possibly removing the affected tissues.

THE OPERATION OF EXCISION OF THE STOMACH.

By AUGUSTUS CHARLES BERNAYS, A.M., M.D., Professor of Anatomy and Clinical Surgery at the Marion-Sims College of Medicine, St. Louis, Mo.

It has been known for years that the entire stomach can be successfully removed in dogs, and that these animals remain alive in perfect health for years. The best known case is the Czerny dog who lived over five years without a stomach and was then in perfect health when killed for the sake of a scientific experiment. Portions of the stomach have been successfully excised in cancer cases by over 150 surgeons. The parts removed involved from one-tenth to eight-tenths of the organ. The entire stomach was successfully removed from a female patient aged 53 years, at Zurich, by Dr. Schlatter. Six months after the operation the woman had gained twelve pounds in weight and is now in good general health.

In all cases that have ever been operated upon suffering from cancer of the stomach, the exact portion of the stomach which was to be removed was determined after the abdomen was opened. It is practically impossible to predict in any case the operation which must be performed. I have usually preferred palliative gastro-enterostomy to a partial excision of the stomach and in some cases have been satisfied to merely curette away the masses of neoplasm which were found obstructing the pyloric orifice.

There is no doubt in my mind after an experience of more than seventy palliative operations that these measures have been of benefit to the patients in prolonging life and in alleviating pain. In some cases the results were simply wonderful. I saw a patient upon whom I had done a gastro-enterostomy gain thirty-five pounds in weight in about two months and another from whom I curretted away over a pound of tumor-mass within the stomach, gained twenty pounds in one month. Both patients died within the year from the continuation of the carcinomatous cachexia and the continued growth of the neoplasms. Palliative operations in cancer cases are never indicated when a radical and scientific operation can be performed. For instance, in cases of cancer of the breast and in uterine cancers which come to us early enough we no longer remove the tumor alone, but always the whole organ. We are not justified in merely removing the whole of the diseased organ, we must also remove the lymphatics leading away from the organ as completely as possible. I invariably do this radical operation in cancers of the breast and also of the womb. In the latter class of cases I have abandoned the old vaginal hysterectomy in favor of the operation of removing the broad ligaments and the womb through the abdomen. My mortality in the latter operation is less than 10 per cent. and no doubt will continue to decrease with a larger experience and a better technique. The length of time that patients remain free from a return is certainly much increased and there is a chance for a radical cure.

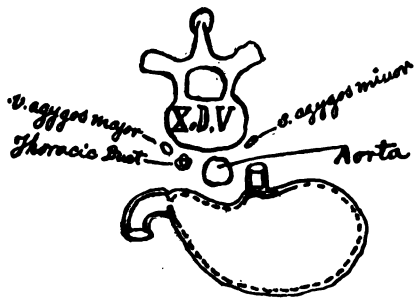
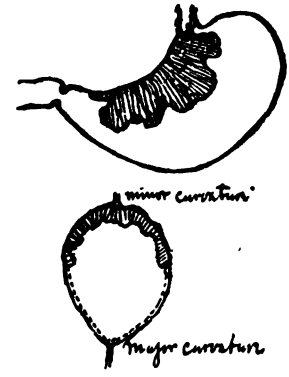


Fig. 1.—Diagram of horizontal plane at tenth dorsal vertebra. Distance from esophagus to pylorus shown in a normal case and is about one-fifth the length of the major curvature, usually not more than five inches.

No kind of cancer is more certainly fatal than cancer of the stomach, and if the operation of gastrectomy can be successfully performed it must be done early and before the cachexia has brought the patient to the brink of the grave. As in other organs the total removal of the stomach is the proper operation in incipient cases. In fact, there can scarcely be a doubt in the mind of any medical man that if an excision of a cancer of the stomach is to be made at all it ought to be a total excision. Partial excisions must be abandoned, and in fact have been abandoned in favor of gastro-enterostomy, curettement or some other merely palliative measures of treatment. I have not done a pylorectomy for over three years and I find that the Germans have almost abandoned the partial resections of the stomach in favor of palliative measures.

The future treatment of incipient cancer of the stomach will be the total or nearly total excision of the organ. Our plain duty is to work toward a perfection of the technique of this operation. My object in reporting the following fatal operation is to add what I have learned to the very meager stock of information we have about this new operation and to make some suggestions tending toward an improvement of its technique.

The patient, whose clinical history is detailed by Prof. Hugo Summa, entered the Rebekah Hospital Jan. 9, 1898. He was carefully prepared for the operation of celiotomy in the usual way, by baths, a purge and antiseptic pack, and by a properly restricted diet. The operation was begun January 11 at 9 A. M. and primarily consisted in an explorative abdominal section in the median line between and extending from the ensiform process to the umbilicus. The hand having been introduced and made to explore the entire surface of the stomach, detected a hard umbilicated irregular tumor involving the entire minor curvature of the stomach excepting about one inch of the pyloric end. There were only three small indurated lymph glands, and they were situated near the major curvature of the stomach in the omentum majus. The whole mass was freely movable, except where it was bound down to the pancreas by adhesions. There were no symptoms of obstruction and, in fact, the pylorus was normal. The operation of gastro-enterostomy was thus plainly contraindicated and the only thing to be done was a removal of the cancerous growth. I hesitated, but the conclusion that the extirpation of the diseased organ was the only rational thing to do was inevitable and I proceeded with the operation. The first step was the transverse section of the pyloric extremity of the stomach, one inch from the duodenum. I next closed the two orifices made by the cut by means of clamps. The duodenal end was drawn out of the abdomen and placed upon the right side of the abdomen entirely out of the way. A large plug of gauze was inserted into the pyloric stump to prevent the escape of intestinal contents. The freeing of the posterior wall of the stomach from its adhesion to the pancreas was next done and was a piece of difficult dissection. I next ligated and cut off the stomach from its omental connec-



Figs. 2 and 3.—These diagrams show the manner and extent to which the stomach was involved in the neoplasm.

tions along the major curvature to the fundus. At this time, while drawing the fundus out of the cavity in order to ligate and cut off the grastrosplenic vessels and ligaments, a small quantity of gastric contents escaped, but was caught to a great extent upon pieces of gauze that were kept in readiness. The stomach was now free from all its connections excepting the minor curvature and the esophagus. There had been no hemorrhage of any account up to this time, as nearly all the vessels were tied before being cut. The entire operation was free from dangerous hemorrhage.

These paration of the minor curvature from the crura of the diaphragm, the aorta and the structures lying in front of the vertebral column was difficult only on account of the depth of the cavity, the necessity of operating in a badly illuminated field, so that the sense of touch was often a more reliable guide than sight. I succeeded in freeing the minor curvature up to the esophagus by means of short clips with the curved scissors. The cancerous growth had shortened the distance between the cardia and the pylorus to about four inches. It was evidently a cancerous ulcer which had a tendency to become scirrhous. The outer surface of the growth was hard, while the inner or mucous surface was ulcerated.

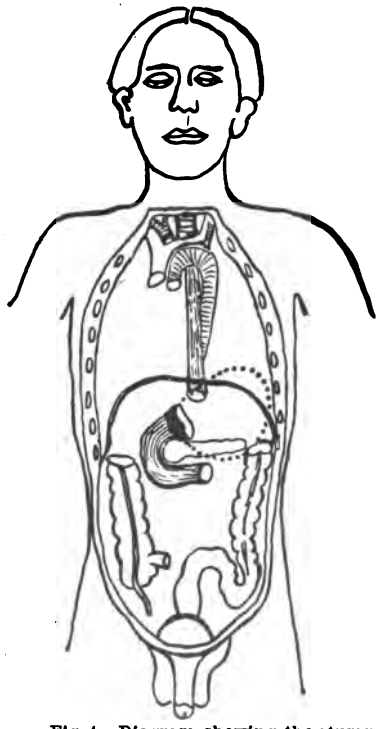


Fig. 4.—Diagram showing the stump of the pylorus pulled up and esophagus drawn out of the foramen ovale of the diaphragm.

After the entire stomach was freed from all its connections I caught the esophagus with a pair of forceps and cut it across about one-fourth of an inch above the cardia and found a small tongue-like piece of the cancer had grown in to the esophagus but had its pedicle in the stomach. I also left a small strip of stomach attached to the esophagus, which I intended to use as a handle by means of which I could pull down the esophagus. This slip proved to be too weak and was soon afterward cut away.

The next step in the operation was the bringing together of the stump of the pylorus and the esophagus. The pyloric stump was freely movable and easily drawn upward, but the esophagus proved well-nigh unmanageable on account of its elasticity and great tendency to slip away through the foramen ovale of the diaphragm. The toothed forceps with which the assistants pulled the esophagus downward slipped off several times during the suturing which I now began. The method which I adopted of making a direct union between the stump of the pylorus and the esophagus seemed to be easier of accomplishment than the plan which Schlatter adopted of bringing up a loop of the jejunum. There was quite a disparity in the lumina of the esophagus and the pyloric stump, but the esophagus just above the cardia is very lax and dilatable.

I could easily introduce three fingers without stretching it perceptibly. I have successfully united the ascending colon to the ileum, end to end, and found that the closure was entirely satisfactory. The method I used in this case was simply to make the stitches in the pyloric stump a little farther apart than in the esophagus. The stitches included all the layers of the wall excepting the mucosa. I united the posterior wall first by a series of stitches which were tied upon the mucous side. These stitches united more than half the circumference of the orifices. Next, three stitches were inserted on the lateral aspects. The knots were tied upon the outer surface of the canal. Lastly, three or four stitches were placed and tied externally upon the anterior aspect of the esophagus and the pylorus. The line of sutures was not as neat as I could have wished, but I was compelled to be satisfied with the work and as I will show later on the stitches held perfectly.

The space which was left after the removal of the stomach was filled out to a large extent by the transverse colon, the splenic flexure and the coils of the jejunum, which sank into the excavation of the diaphragm. I found it necessary, however, to fill up a part of the space by means of a gauze pack. The toilet of the peritoneum was made by means of dry gauze sponges. I used Bi-sterilized gauze, made by Johnson & Johnson, of New York, which I have always found to be absolutely reliable. After the toilet had been most carefully completed I inserted two strips of the gauze, one upon each side of the line of union between the pylorus and esophagus. This was a precautionary measure and was intended to protect the general cavity against infection in case of a leak at the line of sutures. The ends of these two gauze strips as well as the ends of the gauze which lay between the transverse colon and the diaphragm were conducted out of the belly at the upper end of the median incision. The first incision was closed in the usual way up to the point of exit of the gauze drains. A large Linton moist gauze dressing, which was held in place by a binder, was applied over all.

The entire operation had taken two hours and six minutes. Chloroform was the anesthetic used. Silk was used for all sutures and ligatures. An intravenous infusion of physiologic salt solution was made by Dr. Spencer Graves, who, together with Dr. Robert E. Wilson and Dr. Frank M. Floyd, rendered me all necessary assistance. At the conclusion of the operation the patient was in fairly good condition; pulse was about eighty and of good volume. There was no pronounced shock, and indeed the patient rallied nicely from the immediate effects of the operation.

The patient was sustained by nutrient enemata and for the first twenty-two hours seemed to remain in the same condition, with the exception of an increased pulse rate, which ranged from 114 to 124 per minute. There seemed to be a fair chance for a successful termination. During the day, however, he grew weaker, complained of thirst and the pulse remained above 120 all the time. His temperature never reached 101 degrees and he succumbed about thirty-six and one-half hours after the operation.

We had no permission to perform a regular autopsy, but my assistants removed the gauze pack soon after death and found that there was no sign of peritonitis and that union between the sutured ends of the alimentary canal, which were in good opposition, was excellent. The cause of death

is not quite clear, but I think that the long-continued chloroform narcosis and the impossibility of satisfactorily nourishing the patient, as well as the possibility of the absorption of some escaped stomach contents, must be held to be sufficient to explain the unfortunate result.

In future operations I shall use a rubber tube attached to a silk cord long enough to be passed up through the esophagus and out of the mouth. This tube I will leave in the duodenum, extending from about the beginning of the jejunum to near the opening of the larynx. By pulling it up into the pharynx nutrient predigested fluids can then be injected at regular intervals as may be deemed expedient.

In order to facilitate the suturing between the esophagus and the lower gut, be that the pylorus, the duodenum or the jejunum, I would suggest making the union before the stomach is completely cut off from the esophagus. By this means the esophagus can be pulled down and made accessible. Nearly all of the sutures can thus be inserted before the esophagus is cut off.

WOUNDS IN WAR.

A paper published in the *West London Medical Journal*, by Henry J. Davis, says: "Practically, only three kinds of rifle bullets were employed in the Greco-Turkish War. The Greeks used the Le Gras French rifle, with a Chassepot lever action, and the Turks were armed chiefly with the Martini Henri, while some of the Turkish brigades had the German Mauser magazine rifle. But Mr. Davis never came across a single wound in which a Mauser bullet had become lodged. He accounts for this by stating that the terrific velocity of this bullet—it is effective at 4000 yards—is such that it passes through everything, soft parts and bones, and does not remain in the body. In consequence of this, the wounds which it inflicts are much less severe than those caused by the Martini bullet, which, on the other hand, usually splinters a bone in all directions. The use of X-rays was found of service in detecting the presence of bullets. . . In reflecting upon the facts, it would seem fair to assume that modern projectiles tend more to disable a soldier than to kill him; that is to say, he runs more chance of receiving a slight disabling wound than of being killed by a more severe one. Again, in taking into consideration the chances of life after even a severe injury, it should be remembered that these are much greater than has ever been the case before. The resources of modern surgery are such that if a man be not killed outright, the chances for the most part are all in his favor that his life will be saved. However, it would not be possible to make any forecast of the results of the killed and wounded in the next great war; the probability, perhaps, is that the proportion of wounded would be very high, but this would doubtless largely depend upon how the troops manouvered, and the nature of the work which they were called upon to carry out. But with such weapons of precision now forming the 'slaying machines' of modern armies, everyone with humane feelings will earnestly hope that it will be long before the opportunity for testing these machines will arise."

FOR COBWEBS.

PINEHURST, Moore Co., N. C., Feb. 22d, 1898.
Johnson & Johnson:

GENTLEMEN:—Will you be kind enough to send me a price list and any new literature, some red cross cards, "Notes on Catheters and Bougies," "A Book With Mission," etc. Anything to rub off the cobwebs that gather around one here in this piney region, and oblige

Yours most truly,

F. W. BRADBURY, M. D.

ADMIRABLE.

CAIRO, Mo., March 5th, 1898.

JOHNSON & JOHNSON,

New Brunswick, N. J.

Gentlemen:—I have used and will continue to use your preparations especially the preparation of Gauze, Iodoform and Bichloride; these are admirable preparations. I will have our druggist order Bernay's Aseptic Sponge and others. Will you kindly send as per advertisement, "Aseptic Handbook," "Modern Surgical Dressings," "Asepsis Secundum Artem," Bernay's Aseptic Sponges, "Surgeons Memoranda of Dressings."

Yours truly,

B. H. BAGBY.

Dear Doctor:--

The preparation of surgical materials has been revolutionized in our laboratories, both as to the selection of the right material, the method of manufacturing, the manner of putting it up and finally the installation of a complete apparatus for sterilization.

This means that every bit of surgical material leaves our laboratories sterile and aseptic. We ask you to specially consider the one striking fact, that the cost of gauze made surgically clean by these methods is no greater than that of other brands and, in fact, the price is lower when quality and method of preparation are both taken into account.

Respectfully yours,

Dict. by R.W.J. JOHNSON & JOHNSON.

STERILIZED SURGICAL DRESSINGS.

Plain Surgical Gauze.	Surgical Lint.
Plain Gauze Bandages.	Linton Moist Gauze.
Antiseptic Gauze.	Ligatures and Sutures.
Absorbent Cotton.	Surgical Sponges.
Medicated Cotton.	Bernays' Sponges.
Cotton Roller Bandages.	Lintine.

All Forms of Surgical Dressings.

Dressings made surgically clean by Johnson & Johnson cost no more than the other kind.

KILLING GERMS BY STEAM.

The germ-destroying power of steam is acknowledged. The certainty of its germicidal effect, the rapidity of action, and the high penetrating power under proper conditions give it the highest rank. Nevertheless, it has its limitations and certain conditions are required to make steam effective as a germ destroyer. To simply place an article in contact with steam does not imply that freedom from bacteria will follow as a matter of course. Doty says, "although potent when intelligently employed, steam is worthless when improperly employed."

The physical state of the steam and the mode of application have much to do with its effeciency. Simple steam as it arises from an open vessel of water over a fire, is a germicide, but with limitations as to its power. The higher the tension under which it may be applied the greater the penetrating power. Superheated steam however is little more effective than hot air at the same temperature.

Steam exerts its fullest power only when saturated—not mixed with air and circulating under moderate pressure.

***

The main steam sterilizer in use in the laboratories of Johnson & Johnson was built after considerable experiment with various forms of apparatus.

This chamber forms a part of the dividing wall between the ante-room and the aseptic room. The chamber is rectangular in form, large enough to hold a wagon load of goods. It is constructed with thick walls made of metal, asbestos and other non-conducting material. The interior is lined with steam pipe radiators for producing heated air within the chamber. The doors to the chamber open at both ends, one into the ante-room and the other into the aseptic room. These doors are steam tight and held in place by ratchet screws. The chambers are fitted with steam supply and escape connections, gauges for pressure and vacuum, safety valves, exhaust valves, etc. Cars of iron with trays carry the articles to be treated. Supply pipes controlled by valves admit live steam to the interior of the chamber. The actions involved in the operations within the chamber are:

(a) Preliminary warming of the materials to prevent condensation.

(b) Removal of air.

(c) Circulation of saturated steam unmixed with air under pressure through every fibre of the material, subjecting them to the highest possible action of this agent.

(d) Subsequent exhaustion of steam and substitution of heated air.

After the gauze passes into this chamber, the doors are closed and it then becomes a hot-air chamber. The air is then exhausted to a vacuum of 10 or 12 inches, saturated streaming steam is then let in; the temperature soon rises to possibly 240° F., and the pressure gauge indicates 5 or 10 pounds. The steam pipes are now closed; the vacuum pump is again started until the proper vacuum is obtained.

Again steam is turned on, and so on in turn, currents of saturated steam follow each other through the vacuum for from one to two hours. Every part of the chamber is penetrated, every fibre is subjected to the action of this highest of bactericides. The most resistant form of germ life must be reached and destroyed. From the sterilizing chamber the gauze passes directly into the aseptic room.

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Tests made in this sterilizing chamber fully illustrate the rapid penetration and certainty of germicidal effects.

The penetration tests are made by placing a registering thermometer inside the rolls of cotton, gauze, etc., wrapping them in the same manner as packed for the market, the package is then subjected to action of chamber, the temperature of the chamber itself is recorded on a thermometer whose stem extends into the interior of the chamber.

The following is the result of one series of tests:

Article	*Chamber Temperature*	*Time of Exposure Minutes*	*Temperature registered inside of package*
¼ Pound Cotton,	215	10	212
½ Pound Cotton,	220	10	216
1 Pound Cotton,	215	10	210
5 Yards Gauze,	218	10	217
25 Yards Roll Gauze,	215	10	213
100 Yards Roll Gauze,	220	10	218
¼ Pound Cotton,	230	15	230
½ Pound Cotton,	235	15	230
5 Yards Roll Gauze,	225	15	224
1 Pound Cotton,	240	15	238
25 Yards Roll Gauze,	235	15	234
100 Yards Roll Gause,	240	15	238

The results of these tests as shown in the table are very conclusive. The process of vacuum low pressure, saturated steam circulating in currents amounts to a boiling in steam; germ life could not exist under such conditions; the tests prove that in 15 minutes every part of the material is penetrated. In the practical working of the process the time occupied is from one to two hours.

* * *

Tests are constantly made as to the effect of the processes carried on in this chamber upon living bacteria, especially those species affecting wounds. The procedure followed being to soak pieces of sterilized Gauze in cultures of the bacteria, dry them, test the vitality of the organisms upon the infected gauze, then place a portion of the gauze carrying the bacteria inside rolls of cotton, gauze, etc., and subject the whole to the sterilizing process within the chamber.

* * *

Ten minutes' exposure in this chamber at any temperature above 200 will destroy non-spore-forming bacteria. That 15 minutes' exposure at a temperature of 218 and upward will destroy anthrax spores even when the material containing the spores is placed in the interior of a roll of cotton or gauze. It is evident that in the practical working of the chamber where a still higher temperature and longer time is given, the most resistant forms would be destroyed.

FOR WAR

..OR EMERGENCY..

We are revolutionizing the entire production of surgical gauze, by the improvements in methods, by the invention of labor-saving apparatus, and by many important improvements. Our latest and one of the best is **Red Cross Gauze,** Medicated Gauze put up in double germ-proof protecting envelopes.

Red Cross Aseptic Gauze is made, handled and packed, under our systems of surgical cleanliness, folded to 4½ inches, packed in double envelopes, sterilized and sealed. The packages are handsome, strong, handy to throw in a buggy, carry in a satchel or knapsack.

RED CROSS GAUZE.

Borated Gauze, Carbolated Gauze, Corrosive Sublimate, (1-1000 or 1-2000), Iodoform Gauze, 5 per cent., Iodoform Gauze, 10 per cent., Plain Gauze, Johnson's.

ONE YARD ENVELOPES ONLY. SIX ONE YARD ENVELOPES IN A PACKET. SOLD IN PACKETS ONLY. *EVERY PACKAGE STERILIZED.*

AT GREATLY REDUCED PRICES.

JOHNSON & JOHNSON,

. . Aseptic Laboratories . .

NEW BRUNSWICK, N. J.

That Great Forward Step.

"The introduction of **Linton Moist Gauze Dressings,** consisting of gauze and cotton, marks the beginning of antiseptic surgery in this country. It was the first great forward step from the original Lister type of dressings."—*Red Cross Notes.*

* * *

LINTON MOIST GAUZE DRESSINGS have kept step with most advanced surgical practice.

* * *

These are the Processes Used in Preparing Linton Moist Gauze:

1. Sterilization of apparatus and utensils.
2. Personal preparation of operatives.
3. Sterilization of all materials used in the dressings.
4. Sterilization of containers.
5. Handling and packing under rigid systems of aseptic technique.
6. Re-sterilization of the finished dressings within their containers.
7. Sealing hermetically during final sterilization.
8. Check bacteriological tests.

The sterilization is conducted in specially built chambers by currents of saturated steam circulating under pressure and in vacuum. Every fibre is penetrated and sterilized.

LINTON MOIST GAUZE DRESSINGS are prepared in the ... operatives trained in surgical cleanliness. They are bi-Sterilized and ...

LINTON MOIST GAUZE DRESSINGS are made under the di...

The Nurse puts her Seal on Every Jar.

JOHNSON

Aseptic Laboratories,

Linton Moist Gauze

Bi-Sterilized, Aseptic - -

"*Linton Moist Gauze* products have been eminently satisfactory to all scientific surgeons. Continue to lay the greatest importance and stress on, and give the greatest attention to, the *purity, moisture,* and particularly the *sterility* of your wound dressings."—A. C. BERNAYS, M. D.

LINTON MOIST GAUZE.

Packed in One-Yard and Five-Yard Jars.

Borated Gauze—Linton Moist.
Carbolated Gauze—Linton Moist. 5 per cent.
Corrosive Sublimate Gauze—Linton Moist. 1—1000. 1—2000.
Iodoform Gauze—Linton Moist 5 per cent. 10 per cent. 20 per cent.
Boroform Gauze—Linton Moist. Substitute for Iodoform.
Cyanide Mercury and Zinc Gauze—Linton Moist. Lister's formula.
Aseptic Gauze—Linton Bi-sterilized.
Pryor's Gauze—Linton. Iodoform 10 per cent.

Linton Moist Gauze can be relied upon as being absolutely sterile and aseptic. It needs no re-sterilization or other preparation for use.

ete aseptic laboratories in the world. They are handled and packed by sealed within the sterilizer.

ision of graduate surgical nurses.

In ordering specify Linton Moist Gauze.

JOHNSON

NEW BRUNSWICK, N. J.

WAR TALK.

Now that war talk is rife, and it seems a little more than merely possible that the "dogs may be let loose," to use a well worn figure of speech, it is in order to consider certain medical problems that are inevitably suggested by the state of affairs.

What naval warfare will be with modern ships and guns is very largely a question for the future to decide, the little experience gained by a single engagement in the China-Japan struggle hardly being enough for any one to generalize from to any great extent. One thing seems probable, that is that the mortality will be either slight or very great, that modern naval ironclad vessels will be very likely to either fairly protect their crews or prove their coffins.

There has been only one person who has given a graphic account of his experience in a large modern ironclad under perhaps exceptional conditions of exposure to the fire of modern high powered artillery, and he shortly after died, insane apparently from the effects of the shock to his nervous system.

Judging from the war game as played by naval officers in their schools of instruction in naval tactics, the anticipated ratio of casualties in loss of ships and lives must be very large.

It is not, however, alone in the matter of great-gun performances that we meet with questions of medical interest; the small-arm wounds in a future war may also present us with some new experiences and raise new questions for military surgeons and sanitarians to consider.

The modern steel-coated bullet has within certain ranges a tremendous effect on certain parts of the body, but in a very large proportion of cases, probably a majority, the immediate effects of the wound it produces are slight.

The English troops on the Indian frontier found the Lee-Mitford bullet altogether inefficient to stop a charge of fanatical mountaineers, and learned to make them more effective and infinitely more deadly by filing off the steel point. The Indian government taking the hint, invented the Dum-Dum bullet with a soft point which strips off its steel cover and makes a fearfully ragged wound, and is virtually an equivalent to the explosive bullet prohibited, by the Geneva convention. Russia is said to have recently adopted a similar projectile, and if this becomes general the wounds of future wars will be more formidable than ever before. The English government seems to be aware of this fact, and has devised a bullet to obviate some of the objections that would be surely raised were she to introduce her Dum-Dum projectile in any conflict with a civilized nation. It is steel cased throughout but has a cup-shaped depression instead of the soft point; it is said to "set up" a little and sometimes split its casing, but this, it is claimed is a very different thing from the effect of the Dum-Dum projectile or of explosive bullets generally.

Even the proposed English "Mark III" bullet suggests strongly a modified "express" projectile intended to make up for the small caliber and to aggravate the effects on the victim. It is a serious question whether there ought not to be a new Geneva convention to re-regulate these and some other matters, when civilized nations seem to be trimming their course dangerously near the limits of savagery.

In any case military and naval surgeons of the next war, whenever it may be, will have to face some new problems. The effects of modern projectiles, and the care of the wounded in naval actions, are two of the most obvious of these, but perhaps others as yet unforeseen may arise that will sink these into comparative unimportance.

In the question now at issue in a case of hostilities the sanitary problems on the Island of Cuba will be many and full of interest. The march through Spain from Cordova to Madrid will no doubt furnish much material of interest for the medical historian.—*Journal Amer. Med. Assn.*

READY FOR WAR.

The healing art and particularly the surgical branch of it, has made stupendous leaps and bounds forward within the last third of a century. A surgeon nowadays would feel that he had cause to reproach himself should he lose a subject of ordinary amputation. In the field thirty-five years ago, a soldier might as well lose his head at once as a leg. But the scientific means of inflicting bodily harm has kept pace with the healing art, and operations in the nobly-endowed and and scientifically equipped city hospital and those on the field are widely different affairs. Still we are ready for war and the humblest wounded soldier will receive all the humane care science can apply. This means surgical cleanliness on the field of battle, amid the smoke, the heat, the flying shells and whizzing bullets. American surgeons will meet every emergency.

***

Johnson & Johnson state they can sterilize absorbent cotton by tons and tons, gauze by thousands and thousands of yards. Furnish bandages, plasters and appliances by carloads, all done up in small packets, safe to carry, and which opened anywhere, will provide a surgical dressing equal to that used in the best equipped hospital. All this means that some of the horrors of war will be mitigated. That the "angels of cleanliness" will hover over the battlefield, and will drive away the hags of plague, wound fever, gangrene, and suppuration, will assuage pain, soothe and remove untold suffering and misery; will save millions of lives. The victories of Asepsis in peace are preferable to any triumph that can be made in war. But we are ready with thousands of surgeons, with millions of pounds of cotton, with millions of yards of gauze, with miles upon miles of bandages, plasters enough to encircle the earth. They are yours, Uncle Samuel, if you need them, and they are made Secundum Artem Asepsis.

THE CLAIM IS . . . **They Cure**

JOHNSON'S BELLADONNA PLASTERS ARE MADE OF BELLADONNA—NOTHING ELSE. . . . . .

PARTICULAR attention is given to the selection of the drug, the greatest care is given to the extraction of its full virtues. The mass holds all the vital principles of the plant in such a condition that they will be absorbed by the skin and tissues.

Johnson's Belladonna Plasters *"touch the spot,"* relieve the pain and cure disease.

Johnson's Belladonna Plasters are made to cure. This is the all-important claim we make for them. It is the all-important point for the druggist who dispenses; for the physician who prescribes and the suffering patient who wears a plaster.

Johnson's Belladonna Plasters are prescribed by posted, careful and painstaking physicians who look for results in every remedy they use.

Johnson's Belladonna Plasters have been adopted in hundreds of hospitals and institutions because of their definitely demonstrated properties as curative agents. A sample of Johnson's Belladonna Plaster and literature on Belladonna will be forwarded upon request.

JOHNSON & JOHNSON,
New Brunswick, N. J.

In the Civil War the mortality from wounds ran into figures that in our day seems beyond belief, one authority reports that in simple contusions of the cranium the deaths were 16 per cent.; in fractured craniums, 35 to 85 per cent.; in punctures of the cranium, 95 per cent. In chest wounds, the mortality was from 60 to 70 per cent.; abdominal wounds, 85 per cent.

In the coming war with aseptic surgery, aseptic dressings, and advanced methods of surgical technique, the death rate ought to be as strikingly low as the figures above quoted are marvelously high.

WANTS TO CATCH UP WITH THE TIMES.

LANCASTER, Pa., March 22, 1898.

Messrs. Johnson & Johnson:

GENTLEMEN:—I write you these few lines to ask you if you would kindly send me a sample of your Belladonna Plasters, and of some of your new preparations. I have been abroad in Europe for the last five years, taking different courses of medicine, and I think I have got a little behind the times in regard to new preparations, and as I have always heard of your firm having the best standard preparations and surgical dressings, so I thought your firm was the most reliable to refer to in regard to the above mentioned.

Hoping you will oblige me, and by doing so you may rest assured that when I prescribe I will always put the mark of J. & J. under such prescriptions and insist on having no other.

Yours very resp't,

DR. J. A. GREER,

310 South Water St., Lancaster, Pa.

IT'S EASY TO AVOID THIS ANNOYANCE.

LITTLE ROCK, Ark., Mch. 21, 1398.

Messrs. Johnson & Johnson, New Brunswick, N. J.

DEAR SIRS:—I am in receipt of your several letters of recent date. I am not sure but that I wrote you a few days since, but as I am uncertain will write again. I have for some time been using exclusively your various surgical preparations, and as I find them uniformily trustworthy, I have no desire to change.

I desire, however, to make a suggestion or two with reference to manner of putting forward some of your goods. My practice is exclusively surgical, and I suppose that I use as much of catgut as any surgeon in the state.

I never re-prepare any of your ligatures and I have never had infection when other causes than the catgut were not manifest.

Your bottles with three spools, small and hospital size the usual form of purchase. But before using these bottles are thoroughly prepared (outside) in an antiseptic followed by rewashing in sterilized water. This, of course, removes the label. Frequently it is some annoyance to determine sizes after label is washed off, especially so, when bottles are to be used second or more times. My suggestion is to have No. blown into bottle as this would obviate this annoyance.

Again, I think you would do well to put up catgut in less quantity to the bottle for those who, like myself, never use (after once having opened a bottle) the second time in operating in the abdomen or for vaginal hysterectomy. I understand that it would come a little h her priced, but even this would be economical as the unused catgut many times in present form would over-balance the excess in price.

I mean, of course, in this suggestion, that both forms be obtainable, but I think you will find many surgeons who would prefer to purchase bottles of fewer ligatures than your present form.

Is all your catgut prepared in one way or do you have both cumol and formalin preparations? The reason I ask, there are times I would prefer the one or the other.

Yours very truly,

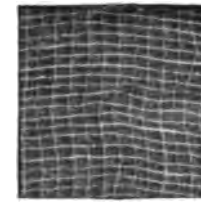
I. J. NEWTON, M. D.

The answer is: Use Red Cross ligatures. These ligatures are put up in a double envelope that is germ proof. Each envelope contains enough for any ordinary operation (thirty inches). An envelope containing a ligature can be taken out, carried in the pocket, satchel, handled in any way without danger of infection, so long as you don't break open the envelope. No troublesome spools, nasty grease, no danger of infection or loss of temper. Open the inner envelopes with disinfected hands or forceps, and inside is absolutely an aseptic ligature.

Johnson & Johnson will send a sample of Red Cross ligatures to any surgeon who writes, mentioning the RED CROSS NOTES.

40 x 44
A—1760 Meshes to inch.

32 x 28
D—896 Meshes to inch.



20 x 14
J—280 Meshes to inch.

Comparative view of a one-inch square taken from three grades of Gauze as found in the Market. Sample A contains more than six times the number of meshes, sample D contains three times the number of meshes shown in sample J, etc.

The ordinary gauze of the market is known as cheese-cloth, tobacco-cloth, gray or unbleached gauze. This article is manufactured in cotton mills for dairy use. It is non-absorbent and is loaded with fillers of various kinds. Often the filling compounds used contain dust, dirt, albumin and gums which become a source of danger in wound dressing. Gauze for surgical uses should be made specially for the purpose. It should have a soft, even thread and contain no kind or sort of filling or dressing. There is a marked variation in gauze cloth offered in the market for surgical purposes. The quality of the fibre, the fineness of the threads, the number of meshes to the inch, varying with each brand, and, in some measure, the price. The arbitrary letters, such as A, B, C, or the numbers, such as 1, 2, 3, etc., which are attached to gauze by manufacturers, bear no relation to the quality or value of the material. In fact, some manufacturers deliberately attach such designatious as number 1, or A, or A1 to gauze very inferior in quality.

The illustrations shown herewith A, D and J, are exact reproductions of a one-inch square piece of three brands of gauze now in the American market, and show the number of meshes to the inch, fineness of threads, etc.

By these illustrations it is apparent that sample A contains more than six times the number of meshes (1760) to the inch than sample J, which contains only 280 meshes to the square inch. The purchaser of sample J will, therefore, be compelled to use six yards to obtain the same absorptive efficiency as would follow the use of one yard of sample A.

Unscrupulous manufacturers take advantage of these facts, and by quoting gauze at a low price under a fanciful name are able to sell at a price much above its actual value. Gauze for wound dressing should, however, be considered from the surgical as well as the dry goods standpoint. Its true value should be based, first, upon its proper preparation; secondly, upon the quality of the fibre, and finally upon the number of meshes per inch.

A CHICAGO IDEA.

CHICAGO LYING-IN HOSPITAL DISPENSARY,
298 MAXWELL STREET,
Near Halsted Street.
CHICAGO, March 3d, 1898.

Messrs. Johnson & Johnson:

DEAR SIRS:—Please send samples of gauzes and cottons for hospital use, prices and discounts. I have great confidence in your products, as witness enclosed, used in private practice, and given my students.

Resp'y,
(ENCLOSURE.) J. B. DELEE, M. D., Director.

LIST OF ARTICLES NEEDED FOR LABOR.

Two Hand Basins of granite ware.
Two Hand Brushes—wood backs.
One new two-quart Douche Bag.
Rubber Sheeting, enough to cover the bed and a piece a yard square.
Thirty yards bleached 4 4 Dairy Cloth.
TWO POUNDS J. & J.'S ABSORBENT COTTON.
FIVE YARD JAR J. & J.'S BORATED GAUZE.
One Hundred Bichloride of Mercury Tablets—P. D. & Co.'s.
Four ounces of Lysol.
Four ounces of Boric Acid Crystals.
One ounce of Camphorated Oil.

J. B. DELEE, M. D., Chicago.

BACTERIOLOGICAL TESTS.

One of the many practical applications of bacteriology is the tests which are applied to surgical dressing material, in order to ascertain whether it is surgically clean, or free from bacteria.

In the laboratories of Johnson & Johnson, methods have been worked out and are applied in experimental work and when new methods are under consideration. These tests are also applied in the working processes in sterilizing cotton, gauze, ligatures and other forms of surgical dressings.

These tests are based upon the following:

Bacteria will grow when placed in a proper soil and subjected to a favorable temperature.

Culture Chamber for Maintaining a Regular Temperature.

By taking a certain object, such as a piece of wood, gauze, cotton, ligature or other material and placing it in a proper soil, under proper conditions, we can ascertain whether it does or does not contain bacteria; by this process we can also ascertain whether a given method of sterilization does or does not destroy all bacteria.

To prove the effectiveness of the processes employed in sterilizing surgical dressings, the method followed is to take a portion of the material in question, for example, a piece of gauze, dip it in a mixture known to contain living bacteria; the material thus covered with bacteria is then passed through the same process of sterilization and subjected to like conditions as are applied to gauze, cotton, etc. After the material above described has passed through the processes of sterilization, a portion of it is placed in a soil in which bacteria will grow. This soil is known as culture jelly. The whole is then placed under conditions favorable for growth.

Tube of Nutrient Jelly Containing Bacteria Growing on Gauze.

If no growth of bacteria takes place it is a proof that the processes of sterilization have destroyed the bacteria with which the material was infected at the beginning of the test.

Note.—Bacteria growing in a suitable soil form colonies or clusters that are visible to the naked eye. These colonies take on certain distinguished characteristics, *e. g.*, liquify gelatine, grow in certain shapes, produce colors, etc., etc.

The proofs furnished by these tests are scientifically accurate in showing the effectiveness of the processes employed to secure surgical cleanliness. The conclusions reached therein need no verification. If a portion of material known to contain bacteria passes through the same process and is subjected to the same conditions as the dressing material prepared by the regular laboratory methods, and at the end the infected material is found to be free from bacteria, we may rightly conclude that all of the dressings passing through such a process cannot fail to be aseptic.

THE WOUNDED IN NAVAL WARFARE.

The fact that a battle-ship of the modern type is, even in times of peace, sadly lacking in the facilities for caring for the sick, is too well known to dwell upon, and it follows as a matter of course that these conditions will, when war is in progress, be sharply accentuated. In truth, the outlook as regards this phase of the situation is by no means pleasant to contemplate. In the days of wooden ships, those requiring surgical treatment were brought to the surgeon; in the modern man-of-war, with its numerous compartments by steel decks and water-tight doors, such methods are impossible and other means of succoring those in need of assistance must be devised by the surgeons. Again, the position of the surgeon will be one of much greater personal danger than was formerly the case; he will not be able to fix upon a particular spot where he can perform his necessary duties, but must be wholly guided by circumstances and must choose a sheltered place in the ship anywhere most convenient. His equipment and the means of transporting the wounded must be of the simplest.

But the question of how most efficiently to care for the wounded after the engagement is perhaps more important than during the action itself. It will be impossible to give them the need, care, and treatment of the ship itself, and in many instances the distance from land will be too great for the services of a hospital to be available. It would appear therefore that an ambulance ship should satisfactorily supply this want. The suggestion that an ambulance ship should accompany every fleet in active service was first made by Dr. J. Rufus Tryon, formerly Surgeon-General of the Navy, and has been strongly argued by Dr. Van Repyen, the present Surgeon-General.

The naval authorities have, it is announced, decided to act on this suggestion, and have purchased the Cromwell liner Creole, which is being as quickly as possible converted into a floating hospital in the Newport News shipyard. This vessel is intended to accompany the North Atlantic squadron, and her speed will enable her to keep up with the fleet.—*N. Y. Medical Record.*

BOOK REVIEWS.

How to Become a Trained Nurse.—By Miss Jane Hodson, directress of nurses, State Hospital, Fountain Springs, Pa. Ex-matron of the House of Relief, Hudson street, New York. Graduate of the New York Hospital Training School. William Abbatt, publisher, 31 Nassau street, New York. One volume, 8vo.; 266 pages; nearly 40 full-page illustrations, one in colors, and gilt side stamp.

Miss Hodson's book gives details of over three hundred schools—size, pay, hours, rooms, instruction, number of cases treated in hospitals, etc., and a list of other things—all useful, and evidently requiring a great deal of research for their compilation.

Then there are fifteen chapters on the various sorts of nursing, written by a number of superintendents. All are well written, some remarkably so.

The illustrations are many—and many are beautiful. Two very interesting are of an electric lift for moving typhoid or sunstruck patients, and of an operating theatre, showing work in progress and the seats full of spectators.

The book is a handsome octavo of 266 pages and ought to be a great success and a great aid to intending nurses.

Johnson's Digestive Tablets . .

Finding that other combinations of Papoid in tablet form were dispensed when this article was desired, thus causing great confusion, annoyance and disappointment, we have dropped the former name (Papoid and Soda Tablets) for that of Johnson's Digestive Tablets.

Johnson's Digestive Tablets are made according to the following formula:

Johnson's Digestive Tablets.	Papoid	gr. i.
	Soda Bicarb.	grs. iii.
Dose—1 to 3.	Sacch. Lactis	qs.
	Menth. pip.	

Johnson's Digestive Tablets are this size, each tablet being stamped as shown in the cut.

The Prices of Papoid Preparations Have Been Reduced.

Johnson's Digestive Tablets, former price, $1.25 for 100; *now* ***$10*** *per dozen bottles, each containing* ***150.***

JOHNSON & JOHNSON

New Brunswick, N. J.

ABSORBENT COTTON NOTES.

Absorptive power for fluids is not in itself determinative of the value of a dressing material.

Schimmelbusch says: "Absorbent cotton is not nearly as efficient in disposing of wound secretions as absorbent gauze."

The quality of an article to be used as a dressing cannot be measured by the quantity of fluid which it will absorb on mere contact. The dressing material must not take up its maximum quantity of fluid at one time, but rather absorb continually and dry out promptly by evaporation. Many materials which absorb quickly and excessively change quantities of fluid. After they are once filled with fluid their capacity of further absorption is lost. They become soft, packed, and have a non-absorbent, impermeable mass similar to paste-board.

Lintine, which is absorbent cotton felted into sheets, absorbs more readily than loose cotton with the added advantage that it never becomes packed and its active power lost.

The Department of Charities and Corrections of Bellevue Hospital have contracted for sixteen thousand pounds of Johnson & Johnson's Absorbent Cotton, to be delivered during the year 1898.

Absorbent cotton sells at a less price than common cotton batting.

Rolling absorbent cotton into sheets, with a layer of tissue paper between each sheet, is the invention of Johnson & Johnson.

The most important requirement for absorbent cotton to be used in surgery is that it shall be surgically clean—free from germs.

Large quantities of absorbent cotton are consumed in the manufacture of celluloid-like compounds.

Cotton fibre during the process of being made absorptive is slightly changed in its physical structure.

Absorbent cotton is practically a pure cellulose ($C_6 H_{10} O_5$.) It may be easily converted into Dextrine $(C_{16} H_{20} O_{10})_6$ by the action of sulphuric acid, or into a grape sugar by a further action of the acid. Thus from absorbent cotton one can produce the usual constituents of infants' food, Paskola and "pure confectionery."

Cellulose and starch are identical in formula to the chemist; when we have learned to actually and cheaply transform cellulose into starch, absorbent cotton will become a source of food. When absorbent cotton becomes a food, man's struggle for existence for want of food will be at an end. When bread and cakes are made from absorbent cotton there will be an end of corners in wheat, of famine, of high-priced food, an era of bliss, such a time is not far distant to chemistry.

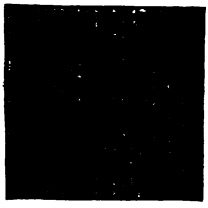
APPLIED BACTERIOLOGY.

Among the brilliant results already obtained from the study of bacteriology has been the establishment on a scientific basis of a thorough technique for surgical operations. No less important has been the application of the science of bacteriology to the manufacture of surgical dressings.

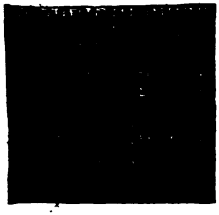
***

The first practical application of an aseptic and antiseptic technique in the manufacture of surgical dressings for the market is undoubtedly to the credit of Johnson & Johnson. In their laboratories from the first inception, until now, no cost or pains have been spared to practically apply every advancement in bacteriology to their work. The dressings emanating from these laboratories are prepared under a technique which observes every minute detail, the utility of which has been proven by bacteriological experiment. These principles have governed the erection of buildings, the fitting up of rooms from which bacteria could be excluded, the development of processes which would destroy bacteria, the devising of modes of handling dressings which would avoid the risk of exposure to infection by bacteria, the invention of modes of packing dressings which secures them from contamination by bacteria, the training of employees in the principles of practical bacteriology, the employment of rigid systems of bacteriological technique.

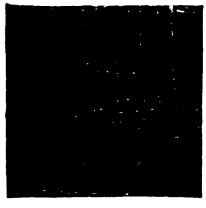
Costs No More—— Than the Common Kind.



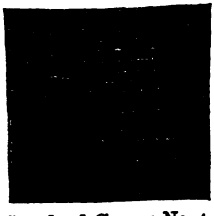
Hospital Standard Gauze, No. 1. 32x28.



Hospital Standard Gauze, No. 2. 28x24.



Red Cross Standard Gauze, No. 3. 24x20.



Standard Gauze No. 4.

"Gauze for wound dressing should, however, be considered from the surgical as well as the dry goods standpoint. Its true value should be based, first, upon its proper preparation; secondly, upon the quality of the fibre, and finally upon the number of meshes per inch."—RED CROSS NOTES.

After a careful study of the needs of the surgeon, we have adopted the grades of Gauze shown on this page as the standard.

Any dealer can furnish them at about the following prices:

25-Yard Rolls (Patent Containers) Sterilized

	Per Yard.
Standard Gauze, No. 1, . . .	3¾ Cents.
Standard Gauze, No. 2, ...	3½ Cents.
Standard Gauze, No. 3, . . .	3¼ Cents.
Standard Gauze, No. 4, ...	2¾ Cents.

Every yard of Surgical Gauze leaves our Laboratory sterile and aseptic.

Good surgeons want surgically clean dressings.

Absorbent Gauze—made surgically clean by Johnson & Johnson costs no more than the other kind.

To get Surgically Clean Gauze at the right price look for the Red Cross and specify

---

JOHNSON & JOHNSON,

New Brunswick, N. J.

A SURGICAL REVOLUTION.

The methods of preparing surgical dressings, such as surgical gauze, absorbent cotton bandages and other surgical material has been revolutionized in the laboratories of Johnson & Johnson by the invention of labor-saving apparatus and by the aid of many important improvements, some of which have just been completed.

The latest addition to their germ-destroying armament makes this probably the largest sterilizing plant in the world. In it surgical dressings can be sterilized by truck-loads and by tons.

The production of gauze cloth and absorbent cotton for surgical uses in these laboratories is surrounded by exceptional conditions. The laboratories are themselves favorably situated for securing freedom from dust, dirt, isolation and cleanliness. The buildings have been constructed and fitted up for the express purpose of preparing surgical dressings therein. The operatives have been especially trained in the principles and practice of surgical asepsis. There is in use specially constructed apparatus, coupled with processes that admit of no failure in the production of sterile products.

GERMANY HAS AN EYE ON US.

The *Pharmaceutische Zeitung*, of Berlin of the date March 5th, 1898, has a cut of one of the sterilizing chambers in Johnson & Johnson's Laboratories, and has this to say:

Einen Sterilisirapparat fur den Grossbetrieb, wie ihn die Firma Johnson & Johnson in New-Braunschweig (Amerika) benutzt zeigt Fig. 12. Links sieht man den Entwickler für die Formalindämpfe (es kann natürlich auch Wasserdampf angewendet werden) und rechts eine von der grossen Trommel abzweigende Röhre, die nach einer Luftpumpe führt. In dem Maasse' wie der Apparat luftleer gemacht wird, dringen natürlich die zur Sterilisirung oder Desinfektion anzuwendenden Dämpfe ein. In diesem Apparat sollen täglich 10,000 Yards (= 9140 Meter) Gaze sterilisirt werden.

..ALL THAT THE NAME IMPLIES..

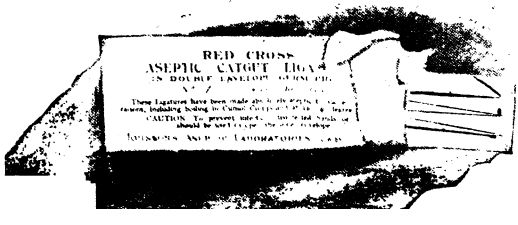
RED CROSS LIGATURES ARE ABSOLUTELY ASEPTIC.

THEY are rendered aseptic by treatment while enclosed within a germ-proof envelope, by successive action of sterilizing agents, including a final boiling in cumol compound, at a temperature of 320 to 340 F. They are then enclosed in an outer envelope and reach the surgeon absolutely sterile. Each ligature is in a separate envelope, protected against infection in handling. Can be carried in the pocket; when opened they will be found sterile and aseptic.

Red Cross Catgut Ligatures, - - - - - 30 inch lengths.

Red Cross Silk Ligatures, - - - - - - 1 yard lengths.

Order Red Cross Ligatures, as there are Imitations.

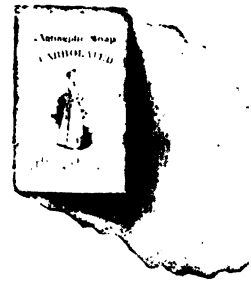


A sample of Red Cross Aseptic Ligatures will be sent any surgeon upon request.

JOHNSON & JOHNSON

New Brunswick, N. J.

Antiseptic Soaps . .



The importance of reliable and truly antiseptic soaps for surgical purposes, for general disinfection, and the treatment of skin diseases, has led us to the production of a line of antiseptic soaps.

RED CROSS SOAP

Contains as its active constituent 10 per cent. of camphenol. Camphenol is an antiseptic, deodorant, germicide and bactericide, far superior to carbolic acid, lysol, creolin, etc. It is useful for bathing patients under treatment for infectious disease, for baths for nurses and attendants, and for the effectual disinfection of persons' clothing in preparing for and during an operation. Emergency Dressings can be easily prepared by boiling cloths, lint, or other suitable fabrics in strong suds made of Red Cross Soap. "The ideal state of perfect asepsis is very closely reached by the aid of the Red Cross Soap."

JOHNSON'S TAR AND WITCH HAZEL SOAP.

For the toilet and bath, for washing infants with tender skin; for the complexion, hair and scalp, for skin diseases, chapped hands, etc.

JOHNSON'S CARBOLIC SOAP.

For physicians', surgeons' and nurses' use, itching, skin troubles, insects' stings, etc.

JOHNSON'S CORROSIVE SUBLIMATE SOAP.

For syphilitic sores, skin diseases, and infected wounds.

JOHNSON'S SULPHUR SOAP,

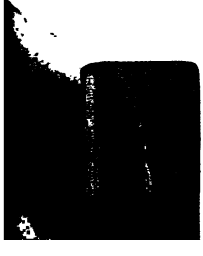
For salt rheum, itching, scabies, acne, dandruff, pimples, blotches, freckles, etc.

JOHNSON'S BORATED SOAP.

An excellent shampoo soap, excellent for the complexion, chronic skin diseases, etc.

JOHNSON'S ICHTHYOL SOAP.

For lupus, eczema, ringworm, frostbites, and for massage in rheumatism and gout.



JOHNSON & JOHNSON

New Brunswick, N. J.

GUN-SHOT WOUNDS.

Considerable attention has been paid by German experimentalists to the question of infection in gun-shot wounds. Kohler states that we may take it for granted that gun-shot wounds are infected frequently because the bullet itself is not sterile, but usually because in its course through the clothing and skin surface it will necessarily carry the germs with it. This infection is not necessarily the most virulent germs and is often quantitatively slight and the tissues may be able to inhibit the farther development of germs.

The experiments show that when extremely virulent bacteria was carried by bullets into the tissues, infection followed.

Cleansing the wound of the bullet track by antiseptic washing and cauterization is often futile.

In the treatment of uncomplicated gun shot wounds it must always be remembered that it is possible that the wound may be absolutely sterile, or that it may be but slightly infected and with non-virulent germs, or that it may be abundantly infected with virulent germs. As to which of these three conditions is present it is impossible to determine at once, hence the earliest treatment should be the application of a sterile bandage for the purpose of preventing secondary infection from without.

The principle of closing at once all gun-shot wounds is an extremely bad one, The simple and uncomplicated ones may be thus treated, but those which are extensive, and especially those into which have been carried portions of clothing, should be drained.

PAPOID = = = PRICE = = = = REDUCED

By improving the method of production and by reason of increased consumption we are able to announce a reduction of more than one dollar per ounce.

REDUCED PRICES

PAPOID POWDER

OLD PRICE, $3.50 per ounce.

NEW PRICE, $2.20 per ounce.

JOHNSON & JOHNSON

New Brunswick, N. J.

IMPORTANT NOTICE.

Every bit of surgical material, such as cotton, gauze, lint bandages, etc., are made surgically clean—free from bacteria, before leaving our Laboratory. Every package, when sealed, is absolutely sterile and aseptic—free from germ life.

To prevent improper handling, each packet is carefully labeled and the containers and outer cases bear a label like the following:

CAUTION.

This Package contains Surgical Dressings that have been Sterilized.

Handle Carefully. Keep Dry.

Keep free from Dust and Dirt.

When dispensing read the Caution Label on each Packet.

ASEPTIC . . . . .
. . LABORATORIES.

Johnson & Johnson

NEW BRUNSWICK, N. J.

RED CROSS NOTES

BOSTON MEDICAL LIBRARY
AUG 11 1898

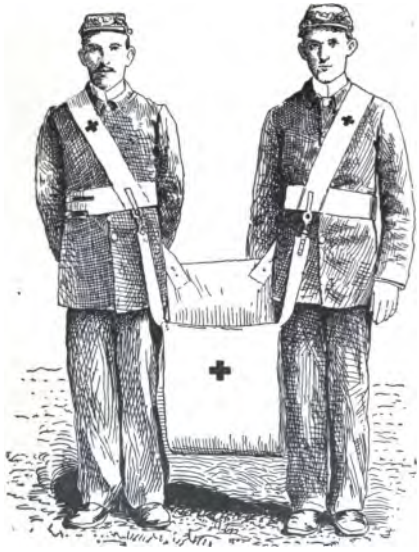
No.12. New Brunswick, N. J. 1898

JOHNSON & JOHNSON LABORATORIES

CARRIER FOR THE WOUNDED.

A recent product of the laboratories of Johnson & Johnson has attracted great attention in the medical journals and lay press. It is a carrier intended to take the place of the stretcher in common use for carrying wounded and injured persons, the invention of Mrs. Cornelia J. Chadwick, wife of Captain Chadwick of the armoured cruiser New York. The illustrations herewith show the construction of the carrier and its method of use.

It consists of a belt passing around the waist to which is attached a strap, going over the shoulder; at proper points along



the belt are rings into which hooks catch from the stretcher. To put the carrier in operation, the wounded man is laid flat on this piece of cloth, or the cloth carrier can easily be passed under his body; two men having the straps adjusted over their shoulder approach and simply catch the hooks in the rings of their belts while in a kneeling position. Upon rising to their feet the wounded man is suspended in a comfortable carrier.

The officers and surgeons of the United States Army have taken great interest in this carrier and Johnson & Johnson have patriotically supplied a number to the Red Cross Society, hospital corps and government representatives. Several prominent physicians have suggested

that these carriers would be invaluable in police work and as adjuncts of hospital ambulances, as well as for firemen in carrying persons out of burning buildings.

The carriers can be attached and adjusted in a few seconds, all that is required is the fastening of one buckle and the snapping of four hooks.

RED CROSS NOTES

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No. 12. NEW BRUNSWICK, N. J. 1898.

ANNOUNCEMENT.

These leaflets are issued monthly supplementary to our monographs, booklets and other publications.

The issues are sent without cost to such persons as we may be able to reach through the regular channels of trade and correspondence.

Those who desire to receive the RED CROSS NOTES regularly must send a request to this effect.

JOHNSON & JOHNSON,
New Brunswick, N. J.

WORTH READING.

	Page.
The Bombardment of San Juan	7
The First Ambulance Ship	10
Taking Care of our Soldiers	16
Worse than Spanish Bullets	18
In Cuba	18
An Aseptic Dictionary	8
What is a Belladonna Plaster? By Dr. Frank Woodbury	3
Myths and Folk Lore of Belladonna By Dr. Adolph W. Miller	9
Assay of Belladonna Plasters	14
Belladonna Names	16

To receive every issue of these Notes send your name with a request to that effect. They are sent without cost to the recipient.

Papoid Powder, old price $3.50 per ounce, new price $2.20 per ounce. This is a reduction of one dollar and thirty cents per ounce.

Johnson's Digestive Tablets (formerly Papoid and Soda) old price $15.00 per dozen for bottles of 100 tablets; reduced price $10.00 per dozen for bottles containing 150 tablets.

BELLADONNA NOTES.

Galen used Belladonna for cancer.

Belladonna was used by the Egyptians to produce sleep.

Belladonna is not appreciated according to its deserts.—*Helma.*

Apply a good preparation of Belladonna; a poor one is useless.—*Sir Richard Marley.*

Apply Belladonna according to the urgency of the symptoms; when they subside stop.—*Marley.*

Belladonna action is a thousand times stronger in the form of a plaster than when taken internally.

Dr. Chas. Rice is of the opinion that Belladonna Plasters U. S. P. should contain 0.3 per cent. alkaloids.

Dr. Bennett F. Davenport says Johnson's Belladonna Plasters show an average of 0.387 per cent. alkaloids.

Belladonna, a drug about which so much has been written; so much is known and so much has been forgotten.—*Todd.*

The most complete account of Belladonna ever written appeared in Belladonna Illustrated, issued in 1894 by Johnson & Johnson.

Belladonna has properties peculiarly its own, which give it special value, therefore, it is worthy of being being better known and more used.—*W. T. Plant.*

Some makers of Belladonna Plasters put the Belladonna all on the label, others boast that they do not use Belladonna at all, but substitute for it "something just as good."

Belladonna has played a prominent part in the fortunes of war. It helped to defeat Antony and aided in the victory of the Scots over the Danes. Here is a hint for our Board of Strategy.

A War Order That Will Be Obeyed.

SUBJECT: .....

WAR DEPARTMENT,
SURGEON GENERAL'S OFFICE,
U. S. ARMY MEDICAL MUSEUM AND LIBRARY,
Corner 7th and B Streets S. W.,

Washington, April 15, 1898. *189*

Messrs Johnson & Johnson,

New Brunswick, N. J.

Gentlemen:

I have the honor to request that the Library of this Office may be furnished with the complete series of "Red Cross Notes" published by you, and with future issues as they appear. This request is made in conformity with your announcement that those who desire to receive the publication regularly must send a request to that effect. The Notes will be filed in the Library, where they will be available for references purposes.

Very truly yours,

J. S. Billings

Major and Surgeon, U.S.Army,
Librarian, S.G.O.

IT'S EASY.

Something like this written on a postal card will secure every issue of RED CROSS NOTES:

BINGHAMTON, N. Y., April 14, 1898.
JOHNSON & JOHNSON, New Brunswick, N. J.

Gentlemen—I will be pleased to receive the Red Cross Notes regularly, and nothing but J. & J.'s goods. Yours truly,
F. E. KNAPP, M. D.

Of the virtues and potences of drugs which have served us from time immemorial, we are often ignorant.—*Todd.*

The prices of papoid preparations have been reduced. Johnson's Digestive Tablets: Former price, $1.25 for 100 tablets. Now $10 per dozen bottles, each containing 150.

WHAT DOES A PHYSICIAN MEAN WHEN HE WRITES FOR "EMPLASTRUM BELLADONNÆ, (U. S. P.)?"

BY FRANK WOODBURY, M. D.

Formerly Professor of Materia Medica and Therapeutics, and of Clinical Medicine in the Medico Chirurgical College of Philadelphia; Associate in Laryngology in the Philadelphia Polyclinic; Physician to the Medico Chirurgical Hospital, etc.

The question has been submitted to the writer whether or not, in filling a prescription which calls for Belladonna plaster, a pharmacist may dispense one which contains a proportionate and proper quantity of atropine, but which has not been made of extract of Belladonna? It would seem that there could be only one reply to this query; the answer must be that, from a therapeutist's point of view, he would not be justified in so doing, and if he were to do so, it would be a case of substitution pure and simple. It might be a justification of this course if he had obtained positive instructions or explicit permission from the writer of the prescription to dispense the atropine plaster in place of the Belladonna plaster. In the latter case, however, it would seem to be the duty of the physician to prescribe the atropine preparation under its own name so as to avoid confusion, inasmuch as the United States Pharmacopœia directs specifically that the Emplastrum Belladonnæ shall be made with "the alcoholic extract of Belladonna" There could be no objection to having the extract of Belladonna standardized so that its alkaloidal strength would be made uniform (as suggested by Dunstan and Ransom), in view of the rather variable strength of the leaves; but is believed that this difference in physiologic activity need not be very great when care is taken to obtain a good quality of the drug collected during the flowering time of the plant in its second year and rejecting specimens of inferior quality which contain much stem, or which have undergone fermentation from improper curing and packing, as suggested by Prof. V. Coblentz.

It is alleged, however, that some pharmacists are in the habit of dispensing, for genuine Belladonna plaster, a preparation which contains no extract of Belladonna, either leaves or root, but which is made with extract of Stramonium, or of Duboisia, or of Hyoscyamus, or of Scopolia, or some other member of the mydriatic alkaloid-bearing group of solanaceous plants. I think such a course is ethically and scientifically indefensible. But it has been asserted by high authority that atropine fully represents the therapeutic qualities of Belladonna, and that on its presence the physiologic activity of the drug depends. On this assertion is based the claim that an atropine plaster is, in fact, a Belladonna plaster to all therapeutic ends and purposes.

Let us submit this claim to examination from the standpoint both of clinical medicine and of pharmacy.

In the first place, atropine has been before the medical profession in the role of the active principle of Belladonna for more than fifty years, its existence having been suspected by Vauquelin and Brande in 1825. It was isolated by Mein in 1831, and with greater precision by Geiger and Hesse in 1833. Notwithstanding its obvious points of superiority for medical purposes, in facility for

administration, both by the mouth and hypodermically; the smallness of the dose, its solubility, and uniformity of action, atropine has certainly not succeeded in winning the favor of physicians to the exclusion of the official preparations of Belladonna. In spite of the fact that we have seen the other alkaloids, representing very closely the physiologic activity of the crude drugs, such as quinine, morphine and strychnine, to a very large extent taking the place of cinchona, opium and nux vomica, a similar course has not been followed with Belladonna. Practising physicians and clinical teachers continue to prescribe Belladonna preparations for a multitude of morbid conditions, in which experience has shown them to be of value, and have restricted the application of atropine almost entirely to its hypodermic use and for a very limited number of conditions. Among these its epidermal application is never included. In our clinical amphitheatres, as in private practice, the prescription of Belladonna plasters is of daily occurrence, but the prescription specifically calling for the application of atropine to the unbroken skin, in the form of a plaster, has yet to be written.

Therefore, experience has not endorsed the statement of the pharmacologic chemist that atropine represents the entire therapeutic value of Belladonna; on the contrary, clinical observation has rather tended to demonstrate the falseness of this teaching and has established the value of Belladonna, as a drug of complex character, and of a good extract as its best representative for medical purposes.

In the second place, atropine itself needs further identification before it can be said to truly represent anything whatever. It has been assumed, rather too hastily it seems, that atropine is the active principle of Belladonna, but if we inquire further as to what atropine really is we find that it is itself a compound body both physically and chemically. That it is to say it is a compound physically because, as shown by Regnauld and Valment, the crystallized atropine of the Codex really consists of a mixture of atropine and atropidine (hyoscyamine), the latter representing about two thirds of the mass. In other words, if we prescribe the crystallized atropine of the Codex we will get a mixture of which only one third is atropine and two thirds hyoscyamine. (*Georges Hayem, Lecons de Therapeutique, Paris, 1891.*)

It is true that both of the alkaloids are associated in Belladonna, but, as their physiologic actions do not correspond entirely, it would be more correct, and of course more scientific, simply to state the fact that Belladonna has more than one active principle, which accords with the statement of Ladenburg, that "Atropine, the base, should be formed of two isomeric alkaloids, atropine and hyoscyamine." (*Hayem, loc. cit.*)

It is a curious and interesting fact to chemists, as well as one of great practical importance to physicians, that the relative yield of atropine and hyoscyamine is said to be to a great extent under the control of the manufacturing chemist. It has been asserted that by exercising special care in the process of extraction, Belladonna will yield only hyoscyamine and no atropine at all. Chemically, these alkaloids are very much alike, for hyoscyamine may readily be converted into atropine, by the action of alkalies or indeed simply by melting the crystals. If this should be fully confirmed,

future editions of our text books must read that hyoscyamine (not atropine) is the active principle of Belladonna, or more correctly, its most prominent constituent.

The claim has been made that Scopolia carnolioca (which contains no atropine, but only hyoscyamine, with a smaller quantity of hyoscine or scopolamine,) may be used in medicine as a substitute for Belladonna, and in fact the plant is said to be largely used in this country for the manufacture of so-called "Belladonna" plaster at the present time.* It is quite certain that this substitution is not generally known to physicians, and it is doubtful if it would receive the approval of many clinical teachers. It is remarkable that this course appears to receive a certain degree of endorsement from the distinguished editors of the United States Dispensatory (17th edition), who, in a foot-note, simply mention the fact of the use of Scopolia in the manufacture of Belladonna plasters in this country, but without expressing approval or disapproval of such action.

The chemistry of atropine is still in a very confused condition. Our works on therapeutics discuss the different and distinct physiologic effects of the several active principles found in the Belladonna plant, atropine, hyoscyamine and hyoscine, and refer to the existence of other active agents of varying activity such as belladonnine and atropamine. On the other hand, the chemists tell us that duboisine, daturine and atropidine are identical with hyoscyamine, that amorphous hyoscyamine contains a large proportion of hyoscine, that atropine is more than half hyoscyamine, and finally that atropine does not exist at all in Belladonna root, but is a decomposition product, the result of imperfect methods of extraction!

With all this uncertainty in the chemical relations of atropine, and in view of the fact that Belladonna is really a very complex substance, it may be accepted as a demonstrated fact that nothing but a well-made alcoholic extract can be said, with due regard for truth and scientific accuracy, to represent the physiological activity of the plant Atropa Belladonna. Hence atropine can not be a complete and satisfactory substitute in therapeutics for the popular and long-established remedy, and compounds containing only atropine or hyoscyamine, no matter how skillfully they may be prepared by the pharmaceutic chemist, cannot supplant the preparations of the leaves or root of Belladonna in clinical medicine.

Dr. Douglas W. Montgomery, in the *Medical News* of January 25, 1896, reported a case of "Belladonna Poisoning without Dilatation of the Pupils caused by a Belladonna Plaster" in which there was rapid respiration, a stormy, accelerated pulse, a dry, hard, furred tongue, a dry, reddened, but not hot skin, a flushed face, constant effort to swallow, no rise in temperature and no dilatation of the pupils. The patient also had busy delirium, picking at the bed-clothes and constantly attempting to get out of bed. It was found that he was wearing a 6x20 Belladonna plaster on his chest, which had been applied a few hours previous to the occurrence of the toxic symptoms, immediately after taking a Turkish bath, which undoubtedly favored absorption of the poison. It was not a case of idiosyncrasy because he had frequently applied smaller Belladonna plasters and worn them

*A paper read by Mr. Seward W. Williams before the American Pharmaceutical Association, at its meeting in 1890, stated that the root of Scopolia carnolioca is substituted for Belladonna Root in the manufacture of "Belladonna" plasters in the Seabury Laboratories.

for a very long time without any evidence of physiologic action. Similar cases have been reported by Pye Smith (Diseases of the Skin), Ernest F. Maddon (*American Journal of the Medical Sciences*, vol. cvl, p. 572), J. F. Walker (*British Medical Journal*, Nov. 28, 1891); so that physicians should be prepared to occasionally encounter toxic results from the use of Belladonna plasters. It is not to be supposed for an instant that these untoward results are attributable to the use of scopolia or stramonium instead of Belladonna in the making of the plaster, but it at least should inspire caution on the part of the physicians ordering Belladonna plasters to attempt to secure a reliable and standard preparation.

The details of the preparation may be trusted to the skill of the pharmacist, provided the plaster contains the required quantity of good Belladonna extract, although it is conceded that a plaster made with even an excessive quantity of Belladonna with a hard and unsuitable basis would be less active and efficient than one containing a smaller quantity of the extract with an absorption-promoting and partly soluble basis.

In the last analysis it is really not a question of whether or not the extract of scopolia, or of stramonium, or of duboisia, are as physiologically active and as therapeutically efficient as the extract of Belladonna leaves, neither is the essential identity of the physiologic actions of hyoscyamine and atropine in question. In making up a cough mixture or a laxative pill, where the prescription called for the alcoholic extract of belladonna leaves, no reputable pharmacist would think of substituting any other extract in place of the one designated by the prescriber, any more than he would dispense atropine for hyoscyamine, or vice versa. Analogy is not identity, and isomeric compounds do not by any means produce the same physiologic effect. But even were it to be granted, for instance, that "Jimson weed" extract, or extract of taraxacum with one-half per cent. of atropine added to it, and similar pharmaceutical preparations, are physiologic equivalents for the alcoholic extract of Belladonna leaves; still the dispensing of either of these for the latter, either in pills or plasters would be opposed to the ethics of pharmacy, and should be condemned as introducing a dangerous precedent, which would in the end be quoted to sanction the substitution of all higher priced drugs by others that are cheaper, but which are alleged to be "just as good."

HONEST SUPERIORITY.

WEST END SANITARIUM.

DR. H. J. JARRELL, Business Manager. DR. J. T. SPARKMAN, Physician and Surgeon in Charge.

The latest and most improved methods will be used by the best physicians of the city in this sanitarium. The most suitable place in this city or surrounding country to treat all surgical cases; a fine operating room and table—Asepsis—everything thoroughly sterilized before all operations.

SAN ANTONIO, TEXAS, March 19, 1898.

Johnson & Johnson,
New Brunswick, N. J.:

Gentlemen: I am pleased to acknowledge receipt of your valuable samples sent me by mail of your valuable absorbent cotton and other things. I think a great deal of same, and assure you it affords me pleasure in always recommending your superior articles to the public and to all others I meet, and when I see same needed in all cases of surgery. I honestly think them superior to any on the market at present, and it affords me great pleasure in recommending same.

Yours very truly,
H. J. JARRELL.

Johnson's Absorbent Cotton

Is better than ordinary absorbent cotton. It is made for Hospital and Surgical purposes. It is absolutely clean and pure.

It is the only kind of cotton that should be used for any purpose where surgical cleanliness and absolute purity is required. Costs no more than common cotton.

In ordering specify

JOHNSON & JOHNSON.

THE BOMBARDMENT OF SAN JUAN.

In the bombardment of San Juan, only two shells from the enemy's batteries struck the ships, one shell striking the New York and one the Iowa. The shell which injured the New York was a cast-iron eight-inch one. It struck a stanchion and burst, the fragments flying in every direction. One fragment struck a man just behind one ear and emerged at the other side of his head. He died almost instantly. Another fragment struck another man in the lower third of the thigh. The missile entered posteriorly and emerged anteriorly. The femur was comminuted. The fragments were resected and the bone ends wired together by the surgeons on board the New York. The same man received a flesh wound in the calf of the other leg from another fragment of the same shell. The third man wounded by this shell received a flesh wound only. The shell which struck the Iowa entered the superstructure and burst. A piece of this shell wounded a marine in the right elbow from behind. The external condyle of the humerus, the head of the radius, and part of the ulna, were shattered and carried away. Efforts are being made to save the arm. Another man was wounded by a splinter from one of the steel girders of the superstructure, which was detached by the shell. He received a lacerated and contused wound of the back, which laid bare the ribs, but did not injure them or the deeper structures. Another man was wounded in the foot, but with no bone involvement. All the wounds after did well, were aseptic and healed rapidly.

What They Want.

The physician wants a plaster which will act as a sure curative agent, otherwise he will use something else.

The patient wants a cleanly and convenient application. Simple to apply and easy to get off; cheap and efficient. He does not wear a plaster for fun, but to get well. The plaster which fails, not only destroys his confidence in all plasters, but in his physician as well.

The pharmacist wants all these qualities in the plasters he sells, and a lot more. Plasters for him must look nice. They must not change under ordinary care or be affected by age or climate. They must be easy to dispense and effective in action. They must be attractively put up and yield a fair profit.

All these "wants" have made JOHNSON'S BELLADONNA PLASTER the best plaster to dispense, to sell or to use.

WORDS OF ASEPSIS.

AN ASEPTIC DICTIONARY.

New words, new phrases and new terms have sprung into use so fast in these progressive days of science, that some of us find it difficult at times, to get a clear idea of the meaning of many that are in common use. To consult an ordinary dictionary is useless, as some of the terms most frequently used are not to be found therein, and if found, possibly their meaning has changed since the dictionary was issued. In surgery many new terms have come into use, and are often applied in a way that is aggravatingly confusing. To meet this condition in a limited field, Mr. F. B. Kilmer has arranged for the students in his laboratory a little "Aseptic Glossary" from which the following has been taken.

Mr. Kilmer says he is willing to admit that some of the definitions are not in accordance with the highest construction of Philology. While he does not claim the definitions are entirely original, he is willing to assume any responsibility connected therewith. In any event he has found by experience that from them a person can get a fair idea of the terms noted.

ASEPTIC GLOSSARY.

Aseptic—Free from poison. A (prefix)—Free from. Septic—poison.

Anti-septic—Against poison. Anti—Against. Septic—Poison. This term was first used by Lister and applied to chemical agents like carbolic acid, which were used to destroy or mitigate the action of disease-producing germs. An antiseptic surgical dressing, in common parlance, means one which is impregnated with an antiseptic chemical, *e. g.*, iodoform. The two words—antiseptic and aseptic- are not used to express the same action or condition. Neither are they antagonistic. Asepsis is cleanliness in the superlative degree, or surgical cleanliness. Antiseptics may be used as agents to produce asepsis, but as all antiseptics do not have the power to destroy micro-organisms, an antiseptic mixture may hold germ life and thus be far from aseptic. The antiseptic agents employed to produce the condition of asepsis may be physical—heat, chemical—carbolic acid, etc., mechanical—washing. These may be supplemented by measures which exclude all bacteria. The aim sought is a condition of freedom of septic material or micro-organisms—asepsis.

Ærobes—Bacteria which require free oxygen.

Anærobes—Bacteria which will not live where there are traces of free oxygen.

Bacillus (plural, bacilli)—A rod-shaped micro-organism.

Bacteria (singular, bacterium)—A generic name representing the entire micro-organisms.

Bacterium—In the generic sense, the singular of bacteria; in specific sense, a very short rod or bacillus.

Biological—Pertaining to the study of life.

Cell wall—A sheath enveloping a cell.

Chain—Several micrococci joined together as a string of beads.

Chromogenic—Applied to bacteria producing pigment.

Colony—An aggregation of bacteria springing from a single micro-organism.

Culture—Bacteria under cultivation in a suitable soil.

Diplococcus (plural, diplococci)—A kind of micrococci arranged in pairs.

Disinfection—A process by which bacteria are rendered inactive or killed.

Fungus (plural, fungi)—A low form of plant life free from green pigment (chlorophyll); it obtains its substance from organic matter.

Germ—That from which vegetable or animal life develops; is frequently used as a synonym of microbe.

Incubator—An apparatus for holding an even temperature during an indefinite period.

Microbes (singular, microbe)—Same as bacteria.

Micrococcus (plural, micrococci)—Spherical bacteria.

Micro-organisms—Same as bacteria.

Micro-millimeter—One twenty-five thousandth of an inch.

Moulds—A class of fungi.

Pasteurization—The process of eliminating most bacteria.

Pathogenic—Applied to those bacteria producing disease.

Pyogenic—Applied to those bacteria producing pus.

Peptones—Digested muscle fibre.

Protoplasm—A semi-fluid; translucent material found in the body of all living cells.

Saprogenic—Applied to bacteria producing putrefaction.

Saprophytic—Applied to bacteria living on dead matter.

Septic—Putrified—Poison—A substance which produces putrefaction.

Sepsis—Putrefaction—This term is now used to designate poisoning proceeding from destruction of the elements of the tissues of

the living body dependent upon the action of micro-organisms, germs, *e. g.*, in an inflamed or pus-discharging wound sepis is present: the wound has been poisoned by a disease-producing or septic germ.

Spirillum (plural, spirilla)—Screw-shaped micro organisms.

Spore—Oval glistening body inside of the bacteria cell.

Staphylococcus—A species of micrococci arranged in grape like clusters.

Sterilization—A process of killing or removing all bacteria.

Streptococcus—A species of micrococci arranged in chains.

Tetrad—A grouping of four micrococci.

Toxicogenic — Applied to bacteria producing poisons.

Translucent—Semi-transparent.

Vibrio—A comma-shaped micro-organism.

Zymogenic—Applied to bacteria producing fermentation.

MYTHS AND FOLK LORE OF BELLADONNA.

(The following were furnished to the RED CROSS NOTES by Dr. Adolph W. Miller, of Philadelphia, Pa.)

The berry of the Deadly Nightshade is known as the Devil's Berry, which reminds us that the whole plant has something uncanny attached to it. It is sometimes called Death's Herb, and was formerly known under the name of Dwale, the fruit being called Dwale-berry, *i. e.*, torpor or trance berry, from the Danish word (dvale) meaning a trance or dead-sleep. This is the explanation given by some writers, though it is only fair to say that others connect it with the French word *deuil*, meaning grief or mourning, because it made those people mourn whose friends ate the berries and died. But the testimony of the Danish *dvale-baer* or trance-berry is in favor of the former suggestion. In Chaucer's time it was employed for sleeping-draughts, hence his remark, that "there needeth him no dwale."

In Bohemia the Belladonna is esteemed as the favorite plant of the devil, who is supposed to watch over it. He may, however, be drawn from it on a certain night in the year by letting loose a black hen, after which it is supposed he will immediately run. The name Belladonna refers to an ancient belief that the Nightshade is the form of a fatal enchantress. The Greek goddess Hekate was supposed to preside over the lower world; she was said to know the names of all the herbs, and to teach her daughters their special qualities. In consequence of this, such poisonous plants as Belladonna, Aconite and a variety of others, were sacred to Hekate.

"I ha' been plucking (plants among)
Hemlock, Henbane, Adder's Tongue,
Nightshade, Moonwort, Leppard's bane;"
—*Ben Johnson, page 531,*

All of which are magic plants.

The Nightshade is said to be a favorite of the devil. Its name Belladonna, meaning Fair Lady, refers to an ancient belief that the Nightshade is the form of a fatal enchantress or witch, called Atropa; while the common name Belladonna also refers to the custom of continental ladies employing it as a cosmetic, or for the purpose of making their eyes sparkle.—*Notes on Belladonna, from Flowers and Flower Lore, by Rev. Hilderic Friend, F. L. S.*

Belladonna means literally *Fair Lady*, and was most likely given to this plant on account of the tempting appearance of these berries. Atropa refers to its deadly properties, coming from Atropos, the ancient name of one of the fates, or evil destinies. The Saxons called the plant Ranewort, or Murdering Weed. Raging and Furious Nightshade are also old names, significant of its evil character. It was likewise called Dwale.

The poisonous nature of this plant has been long known; thus, we read that the Scotch, under Macbeth, having defeated the army of the Danes, under Sweyn, destroyed many of them by mixing its juice with ale, wine and bread. Earlier yet it is recorded by Plutarch that the soldiers of Marc Antony were drawn by hunger to eat unknown herbs, and the camp became filled with unhappy, restless men, who, one by one, died of the poison of the Belladonna. In more modern times it is recorded that 150 soldiers were poisoned by this plant near Dresden.—*Wild Flowers, and Where to Gather Them.*

THE FIRST AMBULANCE SHIP.

The *Solace* is the first ambulance ship ever put in commission. Proper treatment of the wounds on board a modern battleship is well nigh impossible, without lessening the fighting efficiency of the vessel.

The surgeons themselves may move about the ship, rendering aid wherever they may; and this aid must necessarily be limited to checking hemorrhages, the application of temporary dressings, and perhaps some treatment of shock.

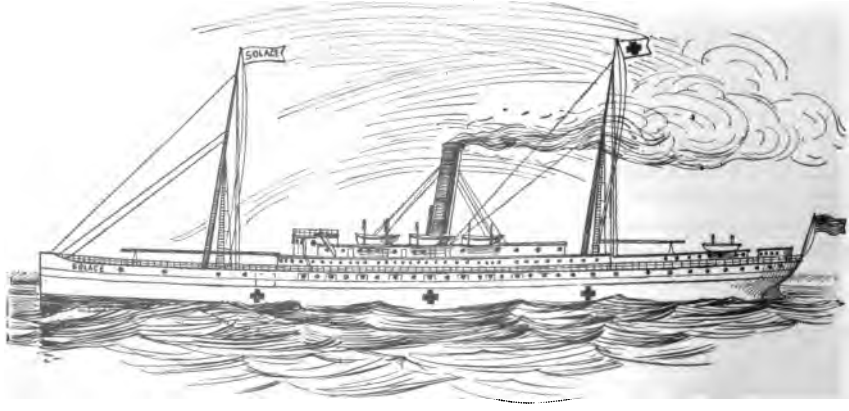
It was with a full understanding of the conditions that Surgeon-General Van Reypen, as soon as hostilities with Spain became probable, sought authority to fit out an ambulance ship. The Solace is the result.

The Solace is a new steel vessel of 3,800 tons displacement, is 375 feet long, and has a speed of from 14 to 17 knots per hour. Her holds and lower decks are given up to the stowage of ship stores and provisions, with the exception of the forward upper cargo deck, on which we find a large steam sterilizer and storerooms for medical and surgical supplies.

On the main deck forward are quarters for the crew of the vessel, the anchor engine, and the blowers for artificial ventilation. Abaft these is the main ward. Here are bunks, accessible on all sides, for ninety-two patients. This ward is well ventilated, and is well lighted. There is also an abundant supply of hot and cold water, and connected with the ward are closets, urinals and bathrooms. This ward is connected directly with the operating-room above by an elevator capable of carrying a cot or wheeled stretcher. Abaft the main ward is a large saloon with staterooms for convalescent officers. On this same deck amidships are staterooms for nurses, apothecaries, and the petty officers of the ship, and the crew's messroom, also cold-storage rooms, ice machines, and ice houses. Abaft the engine-room is the steam laundry, and still farther aft is the emergency ward containing fifty swinging cots. In the extreme stern is the steam steering-engine.

On the upper deck forward is the operating-room—large, light, commodious and well ventilated. It is fitted with two operating-tables, and all modern appliances for aseptic surgery. The deck is covered with interlocking rubber tiles, which are capable of thorough cleansing, and afford a firm foothold in a seaway. The bulkheads are capable of thorough cleansing and sterilization.

Adjoining the operating-room are the surgeons' sterilizing and wash room and the dispensary. In the latter is the central telephone station. Abaft this are,



THE "SOLACE," AMBULANCE SHIP. (Drawn for RED CROSS NOTES.)

on either side, the quarters of the senior surgeon and the chief apothecary, and amidships is a broad companionway leading down to the convalescent officers' saloon.

Next comes the officers' messroom, with connecting pantry and toilet rooms, and abaft these the galley. On either side is a series of staterooms for injured officers, and in the extreme after end of this midship deck house are the quarters for the junior surgeons. In the after deck house is a saloon, connecting with the emergency ward below, for convalescent enlisted men.

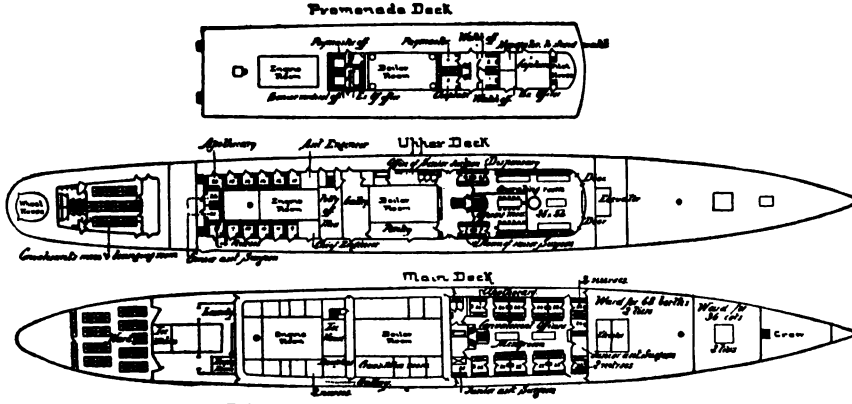
On the promenade deck are the quarters of the captain and deck officers and offices for the executive officer, the surgeon, and the paymaster. The after part of this deck will be devoted to the isolation of contagious diseases, should such develop.

Besides a large distilling-plant, the Solace has tanks for fresh water of a capacity of over twenty-seven thousand gallons. On the forward upper deck the Solace carries two steam launches, which can be fitted with platform decks on which the injured in cots or in hammocks may be lowered.

In conformity with the articles of the Geneva convention, the Solace, as well as each of her steam launches, is painted white. She flies the Geneva cross and thus her peaceful character should be always apparent.

The personnel of the surgeon's division of the Solace includes at present four surgeons of the navy, three apothecaries, eight nurses, four mess attendants and one cook for the sick. In additon there is a captain, executive officer, three watch officers and a paymaster—all of the navy—and a crew of sixty men. The nurses are male nurses and are all graduates of the Bellevue Hospital Training School.

The Solace is expected to remain near the fleet while in action, and as soon as any ship withdraws, or at the close of the engagement, she will take all the wounded on board and steam away for a navy hospital, thus fulfilling distinctly the duties of an ambulance ship and not those of a hospital ship. The injured will be lowered from the battleships either into the Solace's steam launches or into barges towed by the launches, or will be landed directly on the Solace's deck by a trolley sort of litter, which will run on a cable stretched from the battleship to the ambulance ship. The wounded having been received on board of the ambulance ship, those requiring immediate operation will be placed on the tables at once and sent down to the wards later, thus involving the least possible handling; those that do not require operative treatment will be sent at once to the wards.—*Medical Record.*



DECK PLAN AMBULANCE SHIP "SOLACE."

Wanted: Ten T

INDICATIONS FOR USE . . OF JOHNSON'S DIGESTIVE TABLETS

- ACHLORHYDRIA.
- ACIDITY OF THE STOMACH.
- ACIDITY OF THE STOMACH IN PREGNANCY.
- ANÆMIA.
- ATONIC DYSPEPSIA.
- CHRONIC GASTRIC CATARRH.
- CHRONIC GASTRITIS.
- CHRONIC CATARRH OF THE STOMACH.
- CHRONIC DYSPEPSIA.
- GASTRO-INTESTINAL CATARRH.
- CHOLERA INFANTUM.
- FEEBLE DIGESTION.
- ACUTE AND CHRONIC DYSPEPSIA.
- FAULTY NUTRITION.
- ACUTE GASTRIC CATARRH OF CHILDREN.

Johnson's Digestive Tablets, are this size, each tablet being stamped as shown in the cut.

Doctors who habitually p
the astonishing statement tha

Used under proper indi
diet, Johnson's Digestive Ta
to nine cases in every ten.

To prove this statement,

To any physician in go
disordered digestion, acute c
Tablets, we will send one of
free of all cost, provided h
and send us a report of tre

The information thus g
benefit of the medical profes
card.

Literature on Johnson's

THIS OFFER C

JOHNSO

NEW

Isand Dyspeptics.

Johnson's Digestive Tablets have made

and with due attention to hygiene and
disordered digestion, will cure seven

te the following offer:

ling who will select a typical case of
ic, and prescribe Johnson's Digestive
st sized packages containing 150 tablets
rite out a brief diagnosis of the case,
with the results (whether good or bad.)
to be compiled and published for the
Write on printed letter-head or enclose

tive Tablets sent on application.

FOR 30 DAYS ONLY.

K JOHNSON,

SWICK, N. J.

PHYSICIANS' SIZE, 150 TABLETS

Price: Per Dozen Bottles, $10.

A bottle this size sent free under conditions noted on this page.

BELLADONNA NAMES.

An Offer.

The following is a section from a thesis on Belladonna, written in 1776; it deals with the etymology of Belladonna. Messrs. Johnson & Johnson offer to send a one yard roll of Belladonna plaster to the drug clerk or student of medicine who will send the first correct translation of the same.

DE ATROPA BELLADONNA.

BY

PETRUS JOANNIS ANDREAS DARIES.

Spec—Inaug. pro. gradu doctoris,

Lipsiæ, 1776.

ONOMATOLOGIA. § I.

Ut rem ab ono ordiamur, necessum erit, ut primo de huius plantæ nomine conveniamus de cujus etyms, ne philologiæ elegantias insuper habere videamur, quædam sunt præmittenda. Atropa Belladonna *Linn.* est solanum melanocerasum *Bauk.* Græcum esse hoc nomen, quisque facile animadvertit, qui vel primis tantum libris politam Græciæ litteraturam degustavit ubi Στμυχνοκελαυοπεσαδογγς audit—Belladonna *Tournef*, Clus, *Matthioli, Tragi, Dioscorid, Raii*, Atropa *Royan* Solanum furiosum, *Camerar.* Letale, *Lobel, Dodon, Clusii, Thalii.* Solanum maniacum multis f Belladonna, *I. B.* Solanum bacca nigra serasi simili, *Tabern.* Solanum cosmeticum *Weinman, Hoffm. Opsago, Gerard.* Pulchra mulier, Tournef *Germanis;* Wald nachtschatten Schlafbeere, Gollbeere, Irrbeere, Walkenbaum, Marienkraut, Tollkraut, Tollwurtz, Tollkirschen, Schweintodt, Saukraut, Wuthbeere, Teufelsbeere, Willbeere, Wiedbeere, Windbeere, *Anglis.* Dwale, deadly raging or sleeping Nightshade. *Gallis*, Morelle marine, Belledame, *Italis*, Solatro maggiore, Belladonna, *Belgis*, Groote Nachtshaad oft Dulcruyt, Dulle, Besien. *Hispanis*, Yerva mora major, *Lusitanis*, Ayura, Erva, mora—*Bohemis*, Lilek Wetsy, Psy, Wino—*Polonis*, Pfinki, Moszenky, Pfle Wisnie, Michonky, *Hungaris*—Zepzolo, *Danis*, Natskade, Sovv Boer. Swine urz, hocce vegetabile Belladonna audiat, quod, tamen adeo tetri est odoris, ut ne bruta quidem illud prætereumtia degustare soleant, sed cane peius et angue fugiant. Scriptores hanc asserunt crussan, quod exeius succo vel agua destillata fucum conficiant mulieres Italicæ, quo faciem oblinant, decorent, et ex rubicunda pallidam efficiant, frigoris vehementia, *Raii hist, plant. Lond.—1686, fol. 1, 13 c. 23, p. 680.* Alii hanc ob rationem credunt, quod in somnis pulchras virgines feminasque ostendet. THEOPHR, *hist. plant, Illustr Bodæo a Stapel*, fol. p. 1078 APULEIUS ve contendit, hoc nomen esse corruptum ex B lonaria, Nomen letale, somniserum, furiosu maniacum, a symptomatibus comemorand accepit.

TAKING CARE OF OUR SOLDIERS

The War and Navy Departments ar receiving a super-abundance of advice a to how to protect our troops from the ra ages of the Cuban climate. It is pro able that Surgeon-General Sternberg more familiar with the conditions tha anyone in the United States, and is full competent to meet them. It is wel known that the island is very mountain ous and that these parts are fully a healthy as our Southern territory. Th question of water is an important one the troops will be provided with ampl means of boiling it. It should be borne in mind also that nearly every hacienda and indeed more humble places, ar provided with filters made of hollowed out stones that will furnish a moderate supply of very good water. Water boiled and passed through these filters, then cooled by radiation in the native stone bottles, is unexceptionally pure and palat able. The following is a modification of an excellent hint for obtaining pure water when on the march. Boil the water and filter as follows:

Use a soft rubber funnel provided with a tube; inside of the rubber funnel place a layer of absorbent cotton (a small package of which should be provided in each knapsack, to be used sparingly as the occasion requires), hold the funnel high and pour the water through it into the canteen. When not in use the funnel can be rolled up and put in any handy pocket, or the haversack.

Probably a greater danger to our soldier boys than that of impure water exists in the native rums, the fruits and the black veiled Senoritas.

The ancient Assyrians used Belladonna to dispel melancholia.

Uncle Sam's All Right

HIS ARMY AND NAVY USE

Johnson's Adhesive Plaster.

It is adhesive, strong and stays where it is put.

It is perfectly bland, and non-irritating.

Red Cross Ligatures

Because they are absolutely aseptic.

Are in a handy package.

Are protected against infection.

Bernays' Sponges.

Because they are absolutely aseptic.

Cheaper than a common sponge.

Most absorbent material known.

OUT OF SIGHT.

110 P Street, Washington, D. C.,
April 29th, 1898.

* * * *

The sutures, sponges and other things you sent me have proven most satisfactory. The sutures (that is the catgut) are simply out of sight and are superior to anything of the kind I have ever used. I have used them in two knee joint operations, and in a case of wholesale removal of hemorrhoids, and, in contrast with other sutures of this kind, there was no breaking and only a minimum of slipping while they shed their knots at the proper time.

The Bernays Sponges were a surprise to me and I shall continue their use. The beauty of these two, the sutures and the sponges, is the small amount of space they require in a surgical bag. Your Lintine I have not exactly caught onto, but shall use it as I did the "paper fibre" which was put upon the market about twenty odd years ago. We used it then as a covering for wounds much as we now use gauze to-day. In regard to your silk sutures, I would suggest you make some iron dyed or any other color, for the reason, in some operations, fistulas, hemorrhoids, it is necessary to make more than one set of sutures, and if the sutures were in colors we would not have to fish about for the ones we wanted to remove.

L. ELLIOT.

THOSE NEW CONTAINERS

On this page are shown the new *Gauze Containers* for twenty-five and one hundred yard rolls. These containers are dust-tight germ-proof boxes with hinged cover and hinged opening on the side. The opening on the side allows the gauze to be unrolled without uncovering the box. Any portion of the gauze can be cut off and removed without touching or contaminating the remainder.

The Gauze in these containers is always covered and secure from dirt and contamination. The Gauze as here packed is folded nine inches wide for the twenty-five yard lengths, and eighteen inches wide for the one hundred yard lengths. They are tightly rolled, wrapped and then sterilized by the vacuum vapor process and sealed. Every yard of Gauze in these containers leaves our laboratories sterilized and aseptic.

Sterilized Gauze in Johnson's Aseptic Containers costs no more than the common kind.

Johnson & Johnson,

New Brunswick, N. J.

WORSE THAN SPANISH BULLETS

Surgeon-General Sternberg has furnished a statement showing that the number of deaths officially recorded in the fifty-six military hospitals in the Island of Cuba during the single year 1897 aggregated 32,534, a number far in excess of the entire Regular Army of the United States. Of this total between five and six thousand soldiers succumbed to yellow fever, more than six thousand died from dysentery and enteritis, seven thousand from malarial and other fevers, and two thousand five hundred from smallpox. In addition to these nearly thirty thousand were invalided home in transports, their health totally destroyed and their pitiable physical condition rendering them wholly unfit for military service. Nine-tenths of the registered deaths occurred in the summer months, and nearly all the men sent back to Spain became incapacitated during the same period.

Sanitary conditions in Cuba in 1898, with actual war in progress, will be immeasurably worse than they were in 1897.

IN CUBA.

There is no tropical country which affords more sites for general hospitals in the mountains than the Island of Cuba, and the fatuity of the Spaniards in placing so many sick soldiers in the infected military hospital on the shore of the stagnant arm of the Bay of Havana is a melancholy spectacle of incompetent administration. Even at Mariano, but a few miles from Havana, it is well known that yellow fever is infrequent, and it is vastly more healthy than the city. The mountain range of Cuba extends along the whole island, commencing with the sharp peak Pico Turquino, 8,240 feet high, and extending as a backbone along the island. The hills near Matanzas rise to an elevation of nearly 1,200 to 1,300 feet, and there is no question that the interior of the Island of Cuba is as healthy as any country in the tropics. If proper precautions be taken there is no question but immunity from yellow fever can be secured by the rigid observation of sanitary regulations, and prompt isolation of any infected case among the troops that may arise through carelessness or faulty hygiene.—*Jour. Amer. Med. Assn.*

LONG-LIVED GERMS.

Dr. Miguel in 1881 took some soil containing the germs of tetanus, dried it for two days at a temperature of about 90°, sealed it in a tube and placed it in his laboratory. Sixteen years later the germs were found living and virulent.

Under the reduced price 1,000 Johnson's Tablets cost $5.55, a reduction of nearly $7.00 per 1,000.

The price of Papoid has been reduced: Former price, $3.50 per ounce. Present price, $2.20 per ounce.

"I am greatly pleased with JOHNSON'S BELLADONNA PLASTER. I find it gives *quicker and better effect than any other* I have hitherto used."—DR. D. H. AGNEW, University of Penn.

THE BEST COTTON GROWN.

M. L. EURE, Norfolk, Va. | GEO. F. JONES, New York. | W. F. GREGORY, Norfolk, Va. | GEO. H. SHUTT, New York.

OFFICE OF

Jones, Sons & Co. 126 Pearl St. New York.

EURE, GREGORY & CO., P. O. BOX 525

31 Plume Street.

NORFOLK, VA. May 7th 1898

Mess Johnson & Johnson
New Brunswick NJ

Dear Sirs:

Your favor of 6th to hand and contents noted. The cotton we have shipped you during the present cotton season was grown in North & South Carolina, and was selected for you by us with great care. Out of Twelve hundred bales shipped you from October 1st 1897 to May 1st 1898. Or Six hundred thousand pounds. (600,000 lbs) We do not believe there was a bale below "Good Middling" in grade, being free from leaf and very white. We consider the character of the cotton second to none grown in the Southern states, and we say without fear of contradiction it was the best cotton handled in this market. We are

Yours Very Truly
Eure, Gregory & Co.

This letter shows that the staple of Johnson's Absorbent Cotton is the best that the "Sunny South" can produce.

When it leaves our laboratory it is perfect in Absorbency Absolutely Aseptic.

Johnson's Absorbent Cotton costs no more than the other kind.

Luncheon for a Dyspeptic Patient

Koumyss

Celery *Whole Wheat Bread*

Junket *Very Weak Tea*

A Johnson's Digestive Tablet

Dinner for a Dyspeptic Patient

Cream Soup

A Johnson's Digestive Tablet

Boiled Fresh Cod *Bread Sticks*

Baked Chicken

Very Young Peas *Boiled Rice*

Cold Slaw (with Lemon Juice)

Cup Custard

Roquefort Cheese

A Johnson's Digestive Tablet

Price Reduced.

Sample Free.

We are putting up JOHNSON'S DIGESTIVE TABLETS in BOTTLES of 150 for Physicians' use and for convenience in dispensing. The size is also more economical for cases where continued use of the Tablets is necessary.

Formula for Johnson's Digestive Tablets.

Papoid	gr. 1
Soda Bicarb.	grs. iii
Sacch. Lactis	qs.
Menth. pip.	

Each one of Johnson's Tablets is stamped as in this cut,

The price of Johnson's Digestive Tablets has been reduced, former price $1.25 for 100, present price $10.00 per dozen bottles, each bottle containing 150.

A Physicians' Sample of Johnson's Tablets will be sent free to any physician enclosing card and mentioning RED CROSS NOTES.

HEADQUARTERS FOR FACTS ON BELLADONNA.

CHICAGO MEDICAL TIMES,
NO. 103 STATE STREET.

CHICAGO, April 7, 1898.

Johnson & Johnson:

Gentlemen—Will you kindly send me a copy of the pamphlet you published four or five years ago on Belladonna and Belladonna plasters. It contained some facts that I cannot now find elsewhere. Yours most sincerely,

FINLEY ELLINGWOOD.

THE KIND THAT PLEASE THE SURGEON.

DR. J. HOGAN,
OFFICE 303 SOUTH STREET.

SPRINGFIELD, Mo., March 28, 1898.

Messrs. Johnson & Johnson, Mfg. Chemists, New Brunswick, N. J.:

Gentlemen—I am in receipt of your two letters of 18th and 23d inst. Closely read and noted all "points." I have used many articles manufactured by your company with success and great pleasure to hundreds of my patients. Many of your preparations I have used for years. Many thanks for your continued attention. Fully appreciated by

Your obedient servant,

DR. HOGAN.

LIKES THE WAY THEY ARE PACKED.

DR. THOMAS GILL NOCK,
NO. 131 WEST DOMINICK STREET.

ROME, N. Y., March 23, 1898.

Messrs. Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—Your circular of the surgical gauze received. I think your method of putting them up to be very fine. Will you send me sample of your bandage gauze and price of same. Also price in 100-yard lots of the gauze for making gauze sponges.

Very truly, THOS. G. NOCK.

DECEIVED BY AN IMITATION.

DR. CHAS. W. UNGER,
CANCER AND TUMOR SPECIALIST,
OFFICE 107½ N. MAIN STREET.

LOS ANGELES, CAL., March 24, 1898.

Johnson & Johnson,
New Brunswick, N. J.:

Gentlemen—Your favor of March 16th at hand, and I am indeed surprised. I was always under the impression that I was having your goods in my office, but on investigation I find I have the imitation. With many thanks

I am respectfully,

DR. C. W. UNGER.

We will write an eight-page booklet on any medical or pharmaceutical subject (which does not necessitate original research on our part) for $50.

We will furnish an original cover design for same for $25 more.

Designs for illustrations, any size, will cost you $10 each.

And we will bill the original plates at cost.

BUREAU OF IDEAS,

Lyman D. Morse Advertising Agency, 38 Park Row, New York City.

Well Built

The building of Johnson's Belladonna Plaster begins at the foundation, viz., in the fields of Eurasia where the plant is grown. Particular attention is paid to the selection of the root the greatest care is given to its handling and extraction of its full virtues. It is combined in a mass that holds all the vital principles of the plant in a form that is absorbable. From the foundation up it is built to alleviate pain and cure disease.

Johnson & Johnson,
New Brunswick, N. J.

CALIFORNIA TROOPS WELL EQUIPPED.

SAN FRANCISCO, May 9th, 1898.

Messrs. Johnson & Johnson, New Brunswick:

Dear Sirs—Yours of the 3d inst. received. In reference to the compressed surgical dressings you are now preparing for military use, would like very much to have samples of same sent me. I regret not having received your letter sooner as I certainly should have sent an order. As it is, however, the California Volunteers are now supplied with J. & J. gauzes, cotton, Red Cross Ligatures, etc., sufficient to last for some little time. In view of the possibility that another call for volunteers may be issued will you kindly send me literature and details as to cost.

Yours very truly,
JOHN GALLWEY,
Chief Surgeon of Div. N. G. C.

624 Kearny St.

THEIR GENERAL EXCELLENCE.

State of New Jersey.

Medical Department,
New Jersey State Hospital,
Morris Plains, N. J.,

April 18, '98.

A. J. Stephens, Esq., New Brunswick, N. J.:

Dear Sir—I received your sample "Surgeon's Adhesive Plaster" via Roeben & Gunther today. Many thanks for same. Find it a very nice article and will specify it in the future.

We use a large quantity of surgical dressings here, mostly J. & J., and find them unsurpassed for general excellence in quality and appearance. Respectfully yours,

PETER J. DALY,
Druggist.

HAWAII IS WITH US.

HONOLULU, April 30, 1898.

Johnson & Johnson:

Gentlemen—Your circular to hand. I shall have much pleasure in reading the literature you propose to send me.

I have always found benefit and useful information in those pamphlets.

Yours truly, JOHN WEDDICK.

Sec. Roy. Col. Surgeons, Sec. Roy. Col. Physicians, Member King and Queen's Col. Physicians, Ser. in Midwifery Roy. Col. Physicians, etc.

ROENTGEN RAYS ON BACTERIA.

Perfected apparatus and technique have convinced Rieder that the Roentgen ray acts upon bacteria exactly the same as sunlight, only much more intensely, destroying them or at least checking their growth. His experience encourages further therapeutic application of the rays.—*Munch. Med. Woch.*, 1898, No. 4.

Papoid Price Reduced

For some years we have been laboring to secure from the German producers a reduction of the price of Papoid and its preparations. This has been hitherto deemed impossible without sacrificing the high standard of efficiency for which this preparation is noted. However, by improving the method of production and by reason of increased consumption we are able to announce *a reduction of more than one dollar per ounce.*

REDUCED PRICES:

PAPOID POWDER,

Old Price, $3.50 Per Ounce.

NEW PRICE, $2.20 PER OUNCE.

JOHNSON'S Belladonna Plaster.

Made with an idea of giving the exact effects of Belladonna quickly, surely, every time alike.

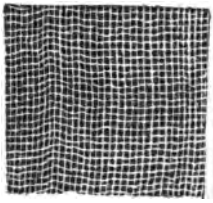
Made of standard extract of Belladonna Root, yielding an even amount of Atropia mixed with Boracic Acid in an absorption-producing base that softens the skin and frees the pores from clogging matter.

Penetration is aimed at in all our plaster bases.

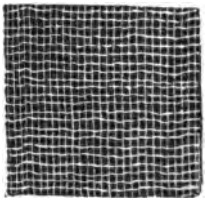
Belladonna Plaster, as made by Johnson & Johnson, has been adopted by 400 hospitals and many thousands of physicians as the standard of excellence, as giving more immediately pronounced and uniform action than any other known.

Johnson & Johnson,
New Brunswick, N. J.

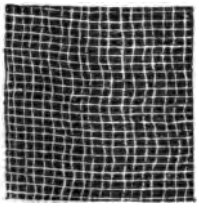
Standard Gauze.



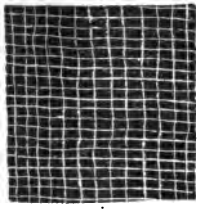
Red Cross Gauze, No. 1.
32 x 28.



Red Cross Gauze, No. 2.
28 x 24.



Red Cross Gauze, No. 3.
24 x 20.



Red Cross Gauze, No. 4.

THERE is a great variation in the gauze cloth offered in the market for surgical purposes. Some of it is the ordinary cheese or tobacco cloth loaded with albumen and serum fillers, dust and dirt. Such gauze is suitable for wrapping cheese and tobacco, but dangerous for wound dressing. Some sellers quote gauze under a fanciful number or name, at a price above its actual value. After a careful study of the needs of surgery, JOHNSON & JOHNSON have adopted the standard grades shown on this page.

Any dealer can furnish JOHNSON & JOHNSON'S STANDARD GAUZE at our prices, which are no more than the price of the common kind.

25 Yard Roll Container for Johnson's Sterilized Gauze.
Every package sealed and sterilized.

Every yard is sterilized within the container and sealed. A portion of the gauze can be removed without contaminating the remainder.

Every bit of gauze is sterile and aseptic. Good surgeons want surgically clean gauze. Standard Gauze made surgically clean by JOHNSON & JOHNSON, costs no more than the other kind.

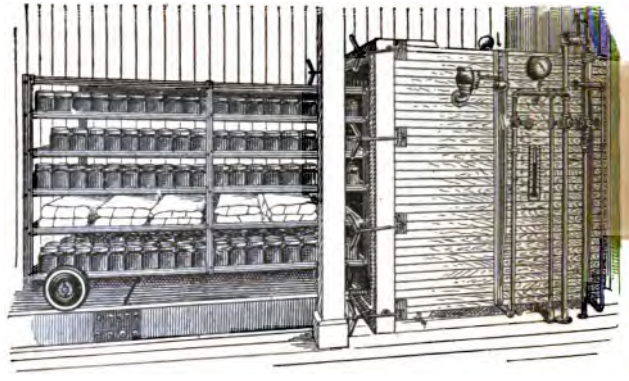
JOHNSON & JOHNSON,

NEW BRUNSWICK, N. J.

Germ Destroyers

The Cruiser "Vesuvius"

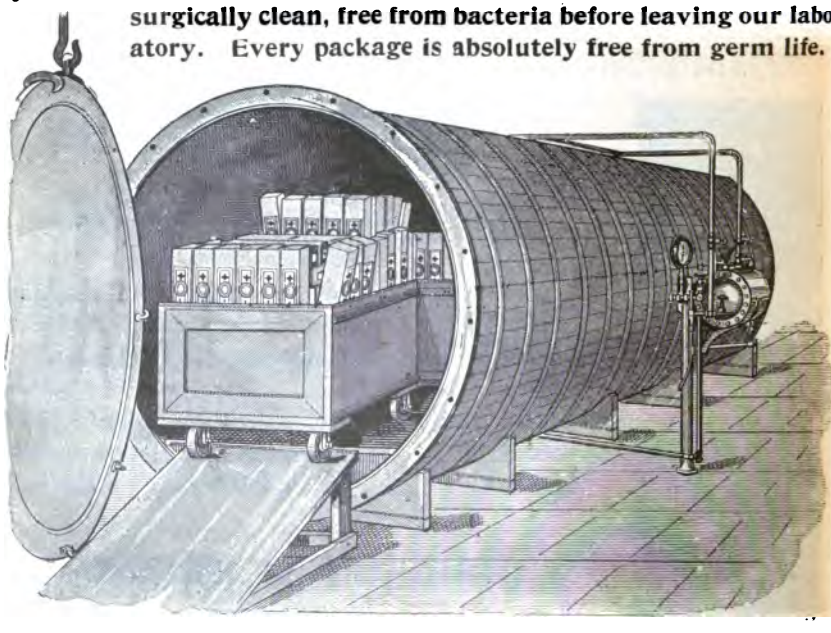
Formaldehyde generator for disinfecting aseptic working rooms



THE "POWERFUL" Steam Vacuum Sterilizing Chamber.

HERE ARE THREE BATTLESHIPS

Belonging to our Aseptic Squadron, (we have many more); no germ can stand the fire of their batteries. We sterilize by truck-loads and by tons. All this means that every bit of surgical material is made surgically clean, free from bacteria before leaving our laboratory. Every package is absolutely free from germ life.



THE "TERROR"—Vacuum Vapor Chamber. The Largest Sterilizer in the World.

Department of the Interior,

U. S. INDIAN SERVICE.

Browning Mont.

May 26 -, 1898.

Johnson & Johnson

N.Y.

Gentlemen

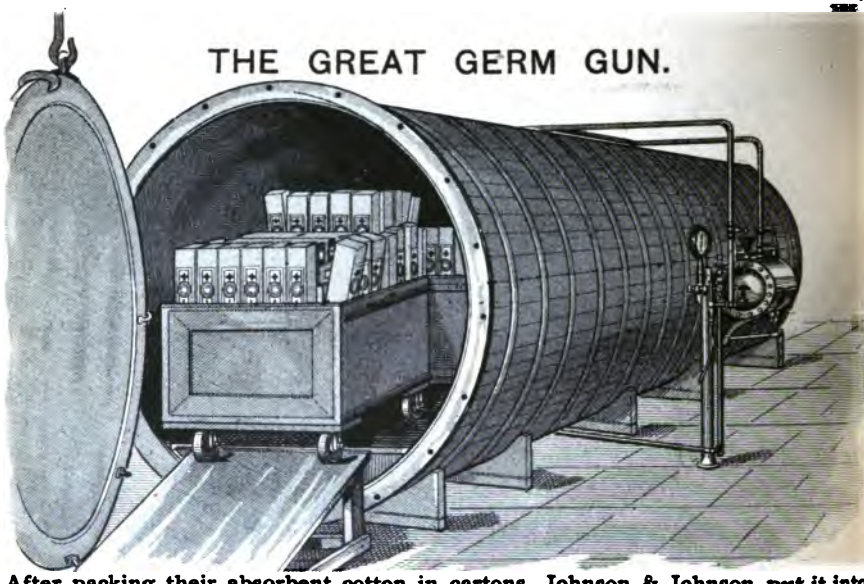
Not long since I received a sample of your digestin tablets. I used them in 1 case with great success. I desire to purchase say 100 tablets to make a more thorough test of this matter. Not knowing the price of same I desire that you send me them with C.O.D or simply inclose your bill for same. There is no drug store close at which I can get them. Yours truly.

Geo. S. Martin M.D.

Agency Physician Blackfeet

Indian Agency Montana.

Johnson & Johnson's Absorbent Cotton is packed in a blue carton with a Red Cross Label.



After packing their absorbent cotton in cartons, Johnson & Johnson put it into this sterilizer, turn on the germ destroyers; every fibre is penetrated, it comes out germ free—surgically clean—aseptic.

Why it gets the Preference.

Our absorbent cotton is made in "the cleanest factory in the world." It not only looks clean but is surgically clean, free from chemicals, poisonous dirt, and all foreign matter. It is probably the only kind made that is fit for wound dressing. It is the kind that is preferred by the surgeon, the kind that pays the druggist. It costs no more than the common kind.

This Label is on every Package.

· CAUTION ·

This package contains Sterilized Surgical Dressings. Dealers should use great care to keep it in a clean place, FREE FROM DUST.

METHOD OF PREPARATION.

This product is prepared and handled by Surgically clean methods. After packing, the container and contents are subjected to germ-destroying vapors in vacuo under pressure, and it leaves our Laboratories Sterile and Aseptic.

Johnson & Johnson.
NEW BRUNSWICK, N.J.

RED CROSS NOTES

JOHNSON & JOHNSON LABORATORIES

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BOSTON MEDICAL LIBRARY AUG 31 1898

Series ii., No. 1. NEW BRUNSWICK, N. J. 1898.

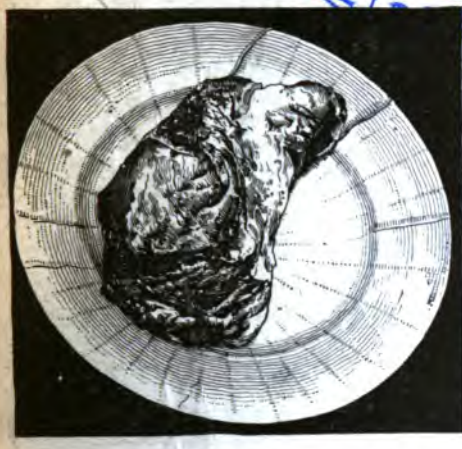


Fig. 1.—Piece of tough, raw beef moistened with a solution of Johnson's Digestive Tablets and placed in a warm place at a temperature of 110 degrees.

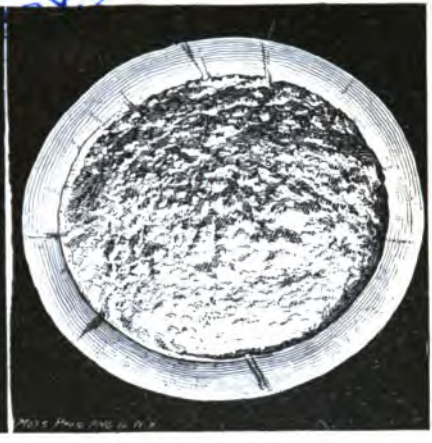


Fig. 2.—Showing softening action of Johnson's Digestive Tablets on tough beef. (Fig. 1.).

SOFTENING TOUGH MEAT.

In the land where the Carica melon is grown the natives make good use of its peculiar properties to tender and soften meat.

Johnson's Digestive Tablets exhibit this remarkable power in a manner that is very striking. In the illustrations here shown Figure 1 is a piece of lean, tough beef; over this was poured six Johnson's Digestive Tablets dissolved in sufficient water to wet the meat, the whole was then placed in a warm place (110degrees), where the action was very marked.

The softening process began immediately; within a half-hour the finger could be punched into the beef, something impossible in its natural state. Gradually the fibers began to lose their individuality, and at the end of three hours the whole became a jelly-like mass. Upon further digestion this mass became fluid, under the second or solvent action of the ferment.

INTERESTING ITEMS.

	Page.
New Discoveries Relating to Digestion	3
Removal of Tatoo Marks and Gunpowder Stains	3
Vegetable Ferments	5
Digestion of Milk, by Prof. R. H. Chittenden	6
Digestion in a Stream of Water	12
Exercise-Cure for Dyspepsia	23

To receive every issue of these Notes send your name with a request to that effect. They are sent without cost to the recipient.

The price of Papoid has been greatly reduced; it costs no more in proportion to dose than any other ferment.

Department of the Interior,

U. S. INDIAN SERVICE,

Browning Mont.

May 26 —, 1898.

Johnson & Johnson

N.Y.

Gentlemen

Not long since I received a sample of your digestin tablets. I used them in 1 case with great success. I desire to purchase say 100 tablets to make a more thorough test of this matter. Not knowing the price of same I desire that you send me them either C.O.D or simply inclose your bill for same. There is no drug store close at which I can get them. Yours truly.

Geo. S. Martin M.D.
Agency Physician Blackfoot
Indian Agency Montana.

NEW DISCOVERIES RELATING TO DIGESTION.

The most important discovery which has been made in modern times in relation to the examination of the stomach is the method sometimes termed "tubage," which consists in introducing into the stomach a soft or semi-soft and very smooth and flexible rubber tube. This tube is not forced into the stomach, as was the case with the tube of the old-fashioned stomach-pump, but is simply placed in the mouth so that the end of the tube touches the back part of the throat, where, being grasped by the muscles of the throat in the act of swallowing, it is quickly carried down into the stomach. By means of the stomach-tube it is possible, by an actual measurement of the quantity of fluid which the stomach will hold, to form a very accurate estimate of its size. It is also possible to determine whether the stomach empties itself completely, and how long a time elapses after eating before the stomach has disposed of its food contents by passing the digesting food along into the small intestines. Many other facts relating to the work of the stomach can be determined by this means.

The examination of the contents of the stomach obtained after a test meal is of still greater importance than a physical examination, at least, in the treatment of functional or non-structural diseases of the stomach. The patient is given a test meal consisting of one and one-half ounces of dry water-bread or two ounces of ordinary baker's bread, with eight ounces of water. Exactly one hour from the beginning of the meal, the tube is passed into the stomach and the contents withdrawn.

After obtaining the stomach fluid, it is subjected to a most critical and elaborate examination.

The foundation for the method employed was laid by Dr. Golding Bird, of Guy's Hospital, London, more than fifty years ago.

Dr. Bird's researches were within a few years reviewed by Hayem and Winter, two French physiologists, who perfected methods for determining not only the amount of hydrochloric acid present in a given specimen of gastric juice, but the amount and quality of the work done by the stomach in the digestion of albumen. Ewald, Boas, and other German physicians have contributed important methods for determining other facts. Professor Roberts, of England, has established a convenient method of studying starch digestion. A brief explanation of the several facts determined by this method will be of interest:—

1. The amount of stomach fluid is normally forty cubic centimeters, or one and one-third ounces; that is, of the eight ounces of fluid and the one and one-half to two ounces of solid food taken into the stomach, all, with the exception of one and one-third ounces, should be absorbed at the end of one hour, or pass on into the small intestine. If a larger amount is found, the indication is slow absorption; if a smaller one is found, the absorption is more rapid than normal.

2. In the examination of a large number of cases the average residue left after filtration is found to be, in healthy persons, twenty grams, or about one-half the total amount obtained. A larger residue than this, or a larger proportion of residue, indicates deficient activity of the digestive fluids in dissolving the food, or delayed solution.

3. If the residue presents masses of food of considerable size, it is evident that mastication has been insufficient.

4. The presence of a large amount of mucus indicates gastric catarrh.

5. A greenish or yellow color usually indicates bile; a red color, blood.

6. The odor of putrescence indicates decay; a sour odor indicates the presence of acetic acid.

7. A red color, or the presence of any unusual appearance, leads to a careful microscopic examination by which the presence of pus or germs may be readily determined.

8. The digestive agents which have been found present in the stomach fluid are next investigated by means of color and other reactions. Those of the most importance are hydrochloric acid, pepsin, and the rennet or lab-ferment Examination is also made for the presence of bile.

9. Recent discoveries in physiological chemistry have made it possible to investigate with most perfect accuracy the different products of the digestion of albumen, or rather the products which are found in the different stages of the conversion of albumen into peptone, the

final product of the digestion of albumen.

10. By means of the reaction with a solution of a compound of iodine, a very good idea may be obtained respecting the conversion of starch into dextrin or malt sugar.

11. By these methods it has been found possible to obtain very definite data respecting the amounts of fermentation which may have occurred in the case of any particular stomach fluid.

12. The above determinations are all of interest and importance, but still more so are the more exact determinations made by quantitative analyses of the stomach fluids, whereby the degree of acidity is accurately determined, together with the amount of chlorin found in the different conditions, free, combined and fixed.

One of the most important advantages gained by this precise method of analysis is the possibility of making an exact and definite classification of all the functional disorders of digestion. In relation to this new classification, it may be said briefly that, considered in relation to the amount of work done, there are four general classes of indigestion—hyperpepsia, in which there is excessive stomach work; hypopepsia, in which there is deficiency of stomach work; apepsia, in which there is no digestive activity whatever; and simple dyspepsia, in which the amount of work done by the stomach is normal, the change in the stomach work being qualitative rather than quantitative.

It must not, of course, be supposed that the treatment of disorders of digestion can be made, even by these exact methods, in any way mechanical or routine, since every individual case presents peculiarities, which must be taken into consideration. The withdrawal of the contents of the stomach in the midst of the process of digestion enables us to surprise the stomach at its work, and thus to detect special faults, such as excess or deficiency of activity, abnormal fermentations through the development of germs in the stomach, etc., and thus makes clear much which has heretofore been a mystery, or a matter of pure speculation in relation to the disorders of digestion. Nevertheless, the size, shape and location of the stomach in relation to normal conditions, and many other details, must be taken into consideration in formulating a prescription.

REMOVAL OF TATTOO MARKS AND GUNPOWDER STAINS.

Dr. A. H. Ohmann-Dumesnil, of St. Louis, in a very interesting communication published in the *New York Medical Journal*, states that he had succeeded in removing these otherwise indelible marks by tattooing the design over again with a bundle of six or ten very fine cambric needles, tightly wound with silk thread, dipped in glycerine solution of Papoid. This is repeated over the entire stain. In fact, it is tattooing with a glycerine solution of Papoid. The rationale of the method he believes to be about as follows: The digestive principle of the Papoid is disseminated about the deposit of pigment, thus liberating it. A portion is absorbed in a finely divided state by the lymphatics; another part probably finds its way into the upper layers of the epidermis and thence to the surface. In this manner we obtain a disappearance of the pigment.

Dr. W. M. Nelson, of Syracuse, N. Y., adopted the method of Dr. Ohmann Dumesnil, of St. Louis, in the case of a young man, whose face was discolored by particles of gunpowder. It was the most marked case of facial staining he had ever seen. He curetted all the part that permitted of his doing so, and squeezed out as much of the carbon in suspension as possible by means of Piffard's Comedone Extractor. The next day he commenced tattooing with glycerine and Papoid and completed the process two days later. The Papoid produced no irritation. The result was entirely satisfactory.—*New York Medical Journal.*

AFTER-TREATMENT OF APPENDIX CASES.

Dr. Robert T. Morris, of New York, in a clinical lecture on Appendicitis, delivered at the New York Post Graduate School, said: "A practical point in the after-treatment of these cases of peritonitis is this: The digestive apparatus is paralyzed, so that food ferments instead of digesting, and that means the production of inflating gas and dangerous toxic substances. The patients need predigested food, and I feel that in these cases Papoid is better than pepsin, because it is in itself clean and carries with it so few of the microbes of fermentation and putrefaction, which abound in pepsins."—*New York Medical Journal.*

VEGETABLE FERMENTS.

Certain species of the vegetable kingdom have long been known as possessing the peculiar property of furnishing a ferment substance, capable of digesting meat and other substances used for food, in the same way that the gastric juice or the pepsin of the pancreatic secretion does in the ordinary process of digestion. The juice of figs and other fruits possess a certain amount of digestive power, but a particular species of the South American paw paw furnishes what is considered a type of digestive ferments. The milk of the fruit of this was noted as early as 1750 for its property of softening meat, and is now in use in a partially dry and preserved state. Several attempts have been made to obtain the active principle of this fruit, some of which have been marketed under various names. The most of these are in reality the untreated juice, and the only property which they possess is a slight softening or dissolving action upon meat albumen; these substances, like the juice itself, have a corrosive action on the living tissue and can only be used externally with extreme care, not being suited for internal administration.

Papoid is prepared from a particular variety of the South American paw paw, and in its preparation the corrosive deleterious properties of the juice are avoided. The ferment is derived direct from the plant, direct from the reserve store of the plant. Its properties differ from any other known ferment; it has a solvent action on albumen, but will not affect living tissue; it will act upon abnormal tissues down to the flesh, and then its action ceases. It will digest proteids, meat, eggs, vegetables, milk, etc.—in fact, acid, alkaline or neutral medium, converting them into peptone. It will curdle and digest milk; it will emulsify fats; it will change starched foods to dextrine and sugar; it acts upon all kinds of food under greatly variant conditions, if chemicals or drugs in any way affect its action. It acts in greatly varying temperatures, having an action in cold, and temperatures reaching the boiling point do not destroy it. The properties shown to reside in the Papoid do not exist in any other ferment, whether from animal or vegetable sources.

ACID—ALKALINE—NEUTRAL.

Pepsin is destroyed in alkaline solutions—lime water, sodium bicarbonate, aromatic, ammonia, etc.

Pancreatin or trypsin or diastase are destroyed in acid solutions.

Papoid is active in acid, neutral or alkaline solution.

Pepsin and pancreatin cannot be mixed together in solutions either acid, alkaline or neutral.

Papoid may be mixed with any other ferment in any solution.

Papoid may be used in solution either acid, alkaline or neutral.

Pepsin is inert in neutral solution; it is destroyed in solutions containing the faintest trace of alkalinity. If an alkaline solution of pepsin be made acid, pepsin action is not restored.

Pancreatin acts slow in neutral solutions, is destroyed in acid solutions. If an acid solution of pancreatin be made alkaline the pancreatin action will not be restored.

Papoid is active in a neutral solution; if a solution of Papoid be made acid it will still be active; if this acid solution be in turn made alkaline it will still be active.

Thus changing a solution of Papoid from acid to neutral, then to alkaline, then reversing the order to neutral, acid and alkaline or changing the order of reaction indefinitely, it would be found that Papoid could not be destroyed by any change of reaction, and would be active under all reactions and conditions.

When the Stomach Contents are

	Acid	***Neutral***	***Alkaline***
Pepsin is	active	destroyed	destroyed
Pancreatin is	destroyed	slow	active
Diastase is	destroyed	slow	active
Papoid is	*active*	*active*	*active*

The tube on the extreme left contains raw milk; in the others Johnson's Digestive Tablets have been added and the casein has begun to separate; in these tubes the stages of digestion are seen in succession, the last tube showing the casein almost completely digested—Peptonized.

DIGESTION OF MILK.

PROF. R. H. CHITTENDEN.

The action of Papoid upon milk is two-fold. First, under suitable conditions, it brings about a curdling of milk or separation of the casein, more or less complete according to the circumstances. This is followed by the ordinary digestive action of the ferment, in which the precipitated casein is converted into soluble products.

The act of curdling, like the process of digestion, is modified more or less by the conditions under which the experiment is tried. Thus, under some circumstances the curdling takes place quickly and the separation of the casein is quite complete. Under others, the curdling takes place slowly and is very incomplete.

While precipitation of the casein is delayed by a low temperature, digestion is not retarded, for digestion of the casein whether still in solution or precipitated by the curdling process, unquestionably goes on, although naturally at a lower rate than at a higher temperature. The rate at which curdling is produced is not to be taken as a measure of the probable rate of digestive action on the milk. The two processes are wholly independent, and in the case of predigested milk, where naturally a small proportion of Papoid is used. the necessary digestion is accomplished without any accompanying separation of the casein; whether it be carried on at a low temperature or at a temperature of 110 F., and in the presence of water alone or in the presence of sodium bicarbonate or lime water. In predigesting milk with Papoid, or any other ferment, the main object sought is the partial digestion of the casein, this being the most important proteid of milk, and at the same time the one most liable

to cause trouble in the feeding of infants and others with weak digestion.

The digestive action in the Papoid is quite apparent to the eye, the precipitated casein visibly diminishing in amount as the digestion proceeds.

From the results of numerous experiments Papoid, especially in the presence of sodium bicarbonate, is particularly well adapted for predigesting milk, the casein being converted by it, as by alkaline trypsin solutions, into soluble and diffusible products.

INTESTINAL INDIGESTION.

Dr. Thomas Hunt Stucky, of Louisville, in an address delivered before the students of the Marion-Sims Medical College, of St. Louis, endorsed the emphatic statement of Dr. Austin Flint. "I have yet to see a single case in which any of the pepsins, pancreatins, or the physiologically absurd combinations of pepsin and pancreatin, logically seemed to produce any benefit, even of a temporary character. In certain cases, in which they have appeared to act favorably as palliatives, it was the careful attention to diet and hygiene during their administration to which the apparrently favorable effects have been fairly attributable." He then asks: "Have we an agent that will prevent food from undergoing mischievous chemical changes before it can be acted upon by enfeebled digestive organs? An agent which will enter into combination with glycerine, an excellent sedative to irritated mucous membrane; that will enter into combination with salol salicin, hydronaphthol, corrosive sublimate, creosote, subgallate of bismuth, salicylate of bismuth, bicarbonate soda and boric acid, *et al.*, without destroying its digestive powers? Or that aids in the relief of constipation and diarrhea, by restoration of normal functions, brought about in the one instance by production of a better digestion on the part of the stomach, in the other, by checking fermentation, lessening intestinal irritation, acting almost as an intestinal sedative? I believe we have, in Papoid. It is an agent which I have weighed often and rarely found wanting. Incidentally, it is one of the best solvents." In summarizing the line of treatment of intestinal indigestion, Dr. Stuckey would have it (1) Diet; (2) Exercise; (3) If indigestion is feeble, tonics, digestive ferments and antiseptics, and (4) daily stools.

This address was originally published in the *Medical Mirror* and has attracted widespread attention. Two large editions of reprints were published, both of which were quickly exhausted. Johnson & Johnson will in the near future republish this most valuable contribution to the literature of this subject.

GASTRIC CATARRH IN CHILDREN.

Dr. George Herschell, in the *British Medical Journal*, discourses on chronic gastric catarrh of children, frequently called biliousness. The symptoms are chiefly anorexia, languor, pasty complexion, sleeplessness and irritability, often associated with frontal headache. In this condition the interior of the stomach is lined with an unhealthy mucous secretion, which prevents the proper absorption of food, and naturally more or less malnutrition and emaciation follow. Papoid proves most useful in those cases, and under treatment with it they generally improve. It probably acts primarily by dissolving away the mucus and cleansing the stomach by stimulating the healthy action of the organ and aiding digestion.

PAPOID POINTERS

One ounce of Papoid will do the work (in many instances) of ten ounces of Pepsin. Papoid is produced in Germany, solely by one maker. We have now succeeded (by reason of improved facilities for production) in reducing the price of Papoid Powder to $2.20 per ounce. Johnson's Digestive Tablets, in bottles of 150 Tablets, $10.40 per doz. bottles. This reduction is made without in any measure sacrificing the high standard of efficiency for which these preparations are noted.

JOHNSON & JOHNSON,
NEW BRUNSWICK, N. J.

ENFEEBLED DIGESTION.

Papoid may be considered to have a specification in enfeebled digestion, as will be seen in the method of use suggested by A. J. Park, M. D.: "It has been of special value in all states where the digestive functions are feeble, inoperative, and seriously impaired from catarrhal complications, or from any other cause, since it is most emphatically indicated when the digestive fluids are unequal to the task of converting the ingesta to a condition preparatory to assimilation."

The following case illustrates the method of action of Papoid, and mode of its administration:—

"Young lady. Symptoms: Patient pale, languid, and debilitated; loss of appetite; pulse feeble, compressible, and small in volume; troubled with insomnia, and extremely nervous; food not digested—it was simply decomposed, attended by persistent and annoying eructations of gas, acid in character; complained of a great pain in head, distress after meals, constipation, and irregular menses. I prescribed mass. hydrarg., gr. xii; ex. colocynth, co., gr. vi; ex. belladon, gr. iii; ex. hyoscyamus, gr. xii; podophylin, gr. ii; M. ft. et div. in pil, No. xii. S. One at bedtime.

"Having relieved the constipation, I prescribed as follows: Papoid, gr. xv; bismuth sub. nit., gr. xxx; strychnin, gr. 1-12 M. div. in ch. No. x. S. Take one powder before breakfast and one before dinner. The first powder to be preceded by a coffee-cupful of hot water, taken as hot as it can be borne.

"This case represents a very numerous class, which are exceedingly common, instantly recognized, and are successfully treated when Papoid is the remedial agent used. In one week this patient reported herself immensely relieved. She said that after the second day the eructations ceased, the acid condition was changed, the distress in her stomach was relieved, the sensation of fulness in her throat disappeared, her appetite improved, the insomnia gave way to restful sleep, and, to use her own forcible phrase, she 'had escaped from the horrors of dyspepsia and the intensified horrors of insomnia.'"

Dyspepsia with catarrhal symptoms was treated successfully by Dr. Park in a case the chief symptoms of which were great distress after food, regurgitation, acidity, weight in the stomach, accompanied by nervous prostration, costive bowels, a sallow complexion and much headache. The prescriptions ordered were: Acid nitro-muriatic dilut, two drams; tr. calumbo; tr. gentian co., a. a. one ounce; tr. nucis vomica, two drams; tr. capsici, one and one half drams; aq. cinnamoni, qsad. four fluid ounces. Give a teaspoonful three times a day in half a glassful of water half an hour before meals, and the following pill at bedtime: mass. hydrarg., gr. j; podophylin, gr. 1-6; ext. nucis vomica, gr. ¼; ext. hyoscyami, gr. j; ext. belladonna rad. alc., gr. ¼; M. ft. pil. No. 1.

At the end of a week he reported himself much better; the first prescription was then suspended and the following ordered: Papoid, gr. xxiv; soda bicarbonate, one dram; div. in Chart No. xxx. Signa. One powder immediately after taking nourishment.

He commenced to improve at once under this treatment; his eyes became bright, he regained his cheerfulness, his appetite returned, his food was properly digested, and he was no more troubled with acid stomach. In two months' treatment he gained ten pounds in weight. "As a precautionary measure, he provided himself with a full supply of tablets. He is now on a ranch in Montana, and writes that his health is fully restored." Two other cases of catarrhal dyspepsia were relieved by similar treatment.—*The Medical Summary.*

A PHYSICIAN WHO HEALED HIMSELF.

The late Dr. Wm. F. Hutchinson, of Providence, R. I., contributed a very interesting article on Papoid to the *New England Medical Monthly*, in which he described a visit to the West Indies, and his acquaintance with the paw-paw plant in its native home. On account of its action on tough meat, the negroes of Barbadoes call it "meat rotter," and it is in constant use with them in the culinary department. After being cured himself of chronic colic by the digestive tablets, he tried the combination of Papoid, soda and bismuth, subsequently substituting strychnine (gr. 1-100) for the latter, in a case of a woman who was in a pitiable condition of nervous exhaustion from long-continued dyspepsia in spite of medical treatment. Improvement began at once, with the aid of diet and electricity, and in two months she became quite another woman in appearance and in her feelings.

HE WAS GREATLY PLEASED.

DETROIT, MICH., May 27, 1898.

Messrs. Johnson & Johnson:

Gents.—I have been greatly pleased with the effects of your Papoid Tablets (Johnson's Digestive Tablets) in a case of gastric catarrh, and consequent impaired digestion. I shall pursue my investigations further in the use of Papoid in gastric troubles.

Please send to my address monograph giving sizes, etc., of Kingstone Catheters, etc., and oblige, Yours respectfully,

W. R. MILLER,

583 Third avenue, Detroit, Mich.

Papoid
digests albumen most energetically.

Papoid
acts on food as it finds it.

Papoid
acts on any kind of food.

Papoid
acts in all media, acid or alkaline.

Papoid
acts in a small amount of liquid.

Papoid
acts all the time the food is in the body.

Papoid
acts at all points in the digestive tract.

Papoid
acts in the stomach or in the intestines.

Papoid
acts for 12 to 20 hours, under all conditions.

The price of Papoid Has been reduced.

Former price, $3.50 per ounce.

Present price, $2.20 per ounce.

Papoid is a vegetable ferment, having a digesting action on all food, all the time it is in the body, at all points in the digestive tract. Dose, one to three grains.

Johnson & Johnson, New Brunswick, N. J.

THERAPEUTIC ACTION OF PAPOID.

Dr. Woodbury summarizes the uses of treating disorders of the digestive organs as follows:—

1. In actual or relative deficiency of the gastric juice or its constituents.

(*a*) Diminished secretion of gastric juice as a whole; apepsia; anemia and deficient blood supply; wasting disease.

(*b*) Diminished proportion of pepsin; atonic dyspepsia; atrophy of gastric tubules.

(*c*) Diminution of hydrochloric acid; achlorhydria; carcinoma.

(*d*) Relative deficiency of gastric juice; overfeeding.

2. In gastric catarrh.

(*a*) Where there is a tenacious mucus to be removed, thus enabling the food to come in contact with the mucous membrane.

(*b*) Where there is impaired digestion.

3. In excessive secretion of acid; to prevent duodenal dyspepsia.

4. In gastralgia, irritable stomach, nausea or vomiting.

5. In intestinal disorders.

(*a*) In constipation due to indigestion.

(*b*) In diarrhea as a sedative.

(*c*) In intestinal worms. (This claim the writer has not personally verified, but as the intestinal mucus which shields the worm is removed by Papoid, it is easily understood that their removal would naturally result after its administration.)

6. In infectious disorders of the intestinal tract.

(*a*) Where there is abnormal fermentation; by its antiseptic action which may be heightened by combination.

(*b*) Where there are foreign substances present, its detergent effect may be utilized in cleaning out the debris from the intestinal contents by digestion.

7. In infantile indigestion; here Papoid not only readily peptonizes cow's milk, but the resulting curds are also soft and flocculent, resembling those of breast milk.

HOW TO USE PAPOID.

Papoid is a creamy white, impalpable, floury, almost tasteless powder, and is soluble in glycerin, moderately soluble in water, more so in acidulated water, insoluble in alcohol. Its digestive action is not destroyed by combination with corrosive sublimate, salol or boric acid, or the ordinary articles of food such as sodium chloride, acids or alkalies. As its digestive activity is most pronounced in alkaline solutions, it is usually combined with sodium bicarbonate. Owing to the convenience of the tablet form, Papoid has been used very largely by physicians in this manner, each tablet containing one grain of Papoid with three grains of bicarbonate of sodium, and flavored with peppermint. These are known under the name of Johnson's Digestive Tablets.

An aqueous solution of Papoid soon spoils, but the glycerin solution will not readily ferment. A glycerin solution is particularly employed for dissolving false membrane in the throat in diphtheria and in cleansing of foul wounds in surgical practice. Any of the usual chemical antiseptic agents may be prescribed with Papoid. Where it is desired to increase its activity, the addition of five grains of sodium bicarbonate to each 100 minims of the glycerole is a decided advantage. It acts at any temperature, but when possible, as in surgical cases and certain forms of skin disease, it is advised that the part to which it is applied should be kept warm with hot cloths or some other means, as a moderately elevated temperature favors its action. A five per cent solution in equal parts of glycerin and water is the favorite formula of Dr. Curtis M. Beebe, of Chicago, for digesting the false membranes in the throat in diphtheria.

In addition to the powdered Papoid, the following tablets are supplied:—

Papoid pellets—each pellet containing one grain Papoid. Papoid and boracic acid tablets—each tablet containing Papoid, gr. i., boracic acid, grs. iijs. Johnson's Digestive Tablets.—Formerly Papoid and Soda Tablets.

The dose of Papoid, ordinarily, is one or two grains, but five grains or more may be used, the only objection being that of useless expense and waste except where very prompt effects are desired, in which case even larger doses of the remedy may be administered. In case of obstruction of the esophagus by an impacted piece of meat and gristle, such as has been recently reported, a paste of Papoid and water with some soda would produce softening in a very few minutes.

PANNUS.

Dr. J. A. Lydston, of Chicago, before the Section on Ophthalmology of the American Medical Association, described his method of treating trachomatous pannus by digestive ferments. He uses a mixture of Papoid and boric acid, making applications twice a day. After mixing equal parts of finely powdered boric acid and Papoid, he dusts the mixture on the cornea by means of a camel's hair brush. Only a slight reaction follows. He stated that he had also used pepsin in similar cases, but with indifferent results.—*Ophthalmic Record.*

DYSPEPSIA.

Dr. Abram Livezey, of Yardley, Pa., wrote to the *Medical Summary:* "I have been much pleased with these tablets [Johnson's Digestive Tablets] in cases of slow digestion attended with flatus. I have derived positive and prompt effects from them, which I never did from pepsin, alone or in combination." He also gives the details of a case of acute dyspepsia—"all food hurting her; fermentation, or at least flatus, was rapidly evolved; epigastric region very much puffed out; she thought she had a tumor, 'was sure of it,' etc.; could not bend or stoop forward, could not use the washboard in washing, etc." He gave her powders of Papoid and boric acid, and Papoid and charcoal chiefly, and she was speedily relieved.

Dr. R. J. Fritzinger, of Philadelphia, in a letter written to the *Medical Summary*, speaks of the following as a remarkable formula: Papoid, one-half dram; pancreatin, one-half dram; soda bicarb., two drams; M. ft. Chart No. xii. Sig.: One powder after meals. From this combination he has such extraordinary results, that he felt justified in publishing it. [Johnson's Digestive Tablets would be an equivalent and much more convenient.]

In functional disorder of the stomach good effects have been reported by Dr. A. J. Park, of Chicago, from the use of Papoid, in cases which he had used other remedies previously, without benefit.

Free of Cost
At Your Door.

To any physician in good standing who will select a typical case of dyspepsia, acute or chronic, and prescribe Johnson's Digestive Tablets, we will send one of the largest sized packages, containing 150 Tablets, free of all cost, provided he will write out a brief diagnosis of the case, and send us a report of treatment with the result (whether good or bad). The information thus gathered to be compiled and published for the benefit of the medical profession.

Write on printed letterhead or enclose card. Literature on Johnson's Digestive Tablets sent on application. This offer is good for 30 days only.

Johnson's Digestive Tablets are indicated in

Achlorhydria.
Acidity of the Stomach.
Acidity of the Stomach in Pregnancy.
Anæmia.
Atonic Dyspepsia.
Chronic Gastric Catarrh.
Chronic Gastritis.
Chronic Catarrh of the Stomach.
Chronic Dyspepsia.
Gastro-Intestinal Catarrh.
Cholera Infantum.
Feeble Digestion.
Acute and Chronic Dyspepsia.
Faulty Nutrition.
Acute Gastric Catarrh of Children.

Physicians' size, 150 Tablets

Price per doz. bottles, $10.40.
A bottle this size sent free under conditions noted on this page.

JOHNSON & JOHNSON, New Brunswick, N. J.

Fig. A.—Lean beef over which was poured a solution of Johnson's Digestive Tablets, the whole enclosed in a bag and held under a stream of water for five hours.

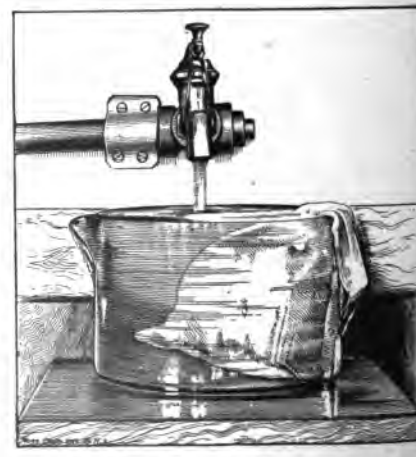
Fig. B.—Remnants of raw lean beef (Fig. A.) after five hours' digestion with Johnson's Digestive Tablets in running water.

DIGESTION IN A STREAM OF WATER.

Papoid is a peculiar ferment and some of the phenomena exhibited by its action are remarkable differing from those shown by any other known ferment. The illustrations herewith given show that the action of Papoid upon meat fibers is continuous, and is not removed by washing, or by the action of fluids in which Papoid is soluble. An explanation of this action is best seen by reference to the cuts. Cut A shows two ounces of lean raw beef; over this beef was poured a solution containing six of Johnson's Digestive Tablets; after being immersed in this solution for twenty minutes the beef and solution were wrapped in a filter and finally transferred to a muslin bag, and the bag containing the beef placed under a faucet of running water and allowed to remain for five hours. The result is shown in cut B, which exhibits the remnants of the meat after being digested under a stream of running water for five hours.

Cut C shows the whites of eggs which were treated in a similar manner by a solution of Johnson's Digestive Tablets, placed in a muslin bag and washed in running water for five hours. In order to demonstrate that this action was not a simple wearing-away process due to the action of the water, a similar experiment was made, without adding the ferment, and the loss of weight was only about fifty per cent. This experiment seems to show that Papoid combines with the fiber of the meat; that the products of this combination are soluble and are removed by the action of water or other fluids; that in the process of washing away, the ferment is left behind to act upon the fleshy portion of the fiber, giving rise to soluble peptones.

It is known that water is essential to



Arrangement of bag containing meat and egg moistened with a solution of Johnson's Digestive Tabets and held under a stream of water for five hours.

Fig. C.—Boiled whites of eggs moistened with a solution of Johnson's Digestive Tablets and placed in a stream of water for five hours.

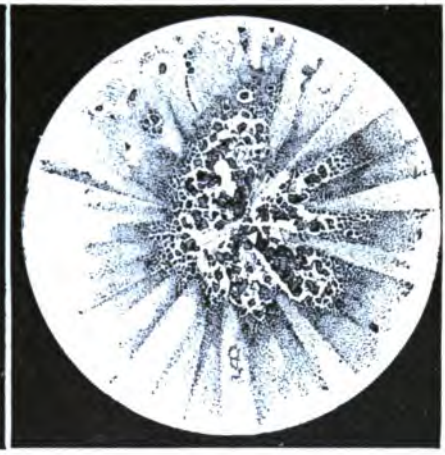


Fig. D.—Remnants of whites of egg (Fig. C) after five hours' digestion with Johnson's Digestive Tablets in a stream of water.

all physiological action, that a digestive ferment can only act upon food in the presence of water. It is also known that in the stomach and intestines the quantity of fluid or water varies greatly.

It has been stated that in certain disorders the contents of the stomach and intestines are highly concentrated, and thus there is but a small proportion of liquid present.

Again, it is stated that in certain other conditions there is in the process of digestion a constant secretion of juices, and thus a current of water.

The Papoid ferment acts energetically in a small amount of fluid, under which conditions most other ferments fail entirely to act.

Papoid, as shown by this experiment, acts in a stream of water.

JOHNSON'S DIGESTIVE TABLETS are agreeable to the taste. They are the most active form in which the ferment can be dispensed. They are convenient to carry, the dosage is accurate, can be given in divided doses at such intervals as may be desired.

Johnson's Tablets taste pleasant, may be swallowed whole, chewed or dissolved in the mouth, as may be desired. The advantages of the administration of this ferment in the form of Johnson's Tablets are very apparent.

SUMMER COMPLAINTS.

In summer complaint, or hot weather diarrheas occurring among infants, Dr. Woodbury, of Philadelphia, regards hygienic treatment, proper clothing, proper feeding and pure air, as of prime importance, both in prevention and aiding in recovery. Where the diet is milk, properly diluted and sterilized, it is highly valuable. Where there is intestinal indigestion and irritation, with green, slimy stools, Papoid with bicarbonate of sodium has a prompt effect. One of Johnson & Johnson's Digestive Tablets may be dissolved in two tablespoonfuls of boiled water, and a teaspoonful administered every fifteen minutes; doses, with the addition of bismuth, if desired, may be given to prevent fermentation of the contents of the gastro-intestinal tract.—*The Medical World.*

In the treatment of marasmus, Dr. Laura M. Wright, of New York, gives a mixture of equal parts of Papoid and sugar of milk, triturated together, of which a grain or two grains may be given as the dose. She states that in her experience it has yielded good results in both acute and chronic cases. —*Medical Tribune.*

Irritative diarrhea in young children may be treated with advantage by Papoid in combination with salol, or salicylate of bismuth.—*New York Medical Journal.*

AN ARRAY OF NAMES THAT TELL A STORY.

Here are the names of a few of the eminent practitioners who in text books, lecture room, clinic, scientific and medical journals have had something to say as to the value of Papoid and its preparations in medicine:—

R. H. CHITTENDEN, Ph. D.,
DR. I. N. LOVE, M.D.,
FRANK WOODBURY, A.M.,M.D.,
HOWARD LANKESTER, M.D.,
DR. O. A. HYDE, New York.
L. M. WRIGHT, M.D., New York,
ROBERT T.MORRIS, M.D., New York,
C. A. EWALD,
W. W. RICHMOND, M.D.,
ABRAM LIVEZEY, M.D., Yardly, Pa.,
W. B. WEST, M.D., Fort Worth, Tex.
A. M. OWEN, M.D., Evansville, Ind.,
Ex-Pres. Miss. Valley Med. Ass'n, Treas. Pan-Amer. Med. Congress, etc.,
A. J. PARK, M.D., Chicago, Ill.,
ARCH DIXON, M.D., Henderson, Ky.,
J. H. KELLOGG, M.D.,
R. ST. JOHN PERRY, M.D.,
R. J. FRITZINGER, M.D.,
CURTIS M. BEEBE, Chicago, Ill.,
DR. S. H. PLATT,
DR. JOHN AULDE,
DR. FREDERICK M. DEARBORN, U.S.A.,
DR. A. BURNSIDE,
PROF. R. H. RUTTAN, McGill University,
DR. H. GEROULD,
DR. R. C. ATKINSON,
DR. J. F. LYDSTON, Chicago,
DR. WILLIAM C. WILE,
DR. ROBERT T. MORRIS,
DR. S. FRITZENBEGER,
DR. E. A. WOOD,
DR. A. F. GREEN,
DR. M'KENZIE JOHNSTON,
DR. R. C. M. PAGE,
DR. W. F. HUTCHINSON,
DR. C. H. SEIBOLD,
PROF. T. M. CALSER,
DR. W. S. RICKARD,
DR. JAMES H. ELDRIDGE,
DR. A. J. PARK,
DR. JOHN A. LARRABEE,
DR. W. M. NELSON,
DR. J. LEWIS SMITH,
DR. E. A. SCHULTZ,
DR. A. A. YOUNG,
DR. ALFRED K. HILLS,
DR. B. VAN D. HEDGES,
DR. F. C. HEATH,
DR. JOHN L. HEFFRON,
DR. F. T. FIELD,
DR. P. H. THOMPSON,
DR. J. L. VAN ZANDT,
DR. B. A. MASSIN,
DR. E. M. HALE,
and several hundred others.

PULMONARY CONSUMPTION.

Dr. E. A. Wood contributed the following to the Pittsburg *Medical Review*, under the title "Papoid in Consumption": "Knowing the power of Papoid to destroy germs in ulcers and on open surfaces, I have employed it in ozena, ulcers of the larynx, and in ulcers and cavities in phthisis pulmonalis. I have used the drug first by insufflation, but latterly by using Papoid and glycerine by the atomizer. Since the eight months of trial, I have been more and more convinced of its efficacy in the lesions named.

"The treatment followed is: First, bromide of gold and arsenic internally, ten drops in water before meals; second, depress the tongue that the spray of Papoid may thoroughly reach all parts of the larnyx; third, cause the patient to breathe deeply, that the drug may reach all parts of the bronchioles; fourth, employ the spray for at least ten minutes at each setting; fifth, use the spray morning and evening. If there be no ulcer, the Papoid can do no good used as a spray.

"When Papoid is used as a digestive ferment in cases of consumption, where there is debility, weak digestion, and the suspicion of congested mucous patches, the drug should not be given in concentrated form, lest it dissolve the weakened tissues. In that case incorporate the Papoid with the food before it is eaten. Sometimes it is better to partially pre-peptonize the food."

In a paper read before the Mississippi Valley Medical Association Dr. Wood referred to "Two cases of fibroid consumption with cavities, both the result of neglected pneumonitis, which are astonishingly improving under the use of bromide of gold and arsenic internally, and the inhalations of Papoid and glycerine by the atomizer—*Medical Mirror.*

Pepsin does not digest
BREAD, BUTTER, OATMEAL, HOMINY, RICE, POTATOES, PATS, VEGETABLES.
Papoid does.
JOHNSON & JOHNSON,
Chemists, NEW YORK.

CLINICAL GLEANINGS.

In a case of atonic dyspepsia folowing pneumonia in a boy of 12 years of age, who on the 12th day of pneumonia, when convalescence set in, was so weak that life was despaired of. "It was indeed a difficult matter to get his food to digest at all for a while, but Papoid, in grain doses, taken every time food of any character was ingested, soon corrected this." —*Dr. Myron L. Cooley, in New England Medical Monthly.*

Dr. A. E. Thomas, of Chicago, reported a case of chronic gastritis with pain, and vomiting, in which a diet of milk was prescribed, two-thirds of a cupful every three hours, three grains of Papoid in each feed, and the milk warmed. Lavage was practised. The milk and Papoid were continued for some time after other foods were used. The Papoid was prescribed not only as a digestive agent, but also as a stimulant for the mucous membrane of the stomach.—*Medical Century.*

The Medical Free Press editorially states, that "Papoid is rapidly coming into the front ranks as a digestive ferment, whether the digestive failure is in the stomach and pepsin fails, or in the bowels and pancreatin proves worthless. Thus proving an invaluable preparation, especially in doubtful cases. It will certainly prove of the highest value in weakened digestive powers such as consumption, diabetes and all wasting diseases."

For catarrhal conditions of the stomach. The editor of the *New England Medical Monthly* gives the following prescription, which he regards very effectual: Papoid, one dram; Hydrastin (Lloyds), one and one half drams; Bismuth sub., one and one half drams; soda bicarbonate, gr. xx M; Div. in ch. No. xx. Sig. Give one powder after meals. Also let the patient take a coffee-cupful of hot water every morning half an hour before breakfast.

In apepsia of young children, or atrophy of the gastric follicles, the result of chronic catarrh, accompanied by deficiency of secretion, the glycerin in solution of Papoid (five per cent) is especially effective, according to Dr. F. Woodbury.

In chronic gastro-entero-colitis Dr. I. J. Hill, of Falmouth, Mass., advocates counter-irritation, with thapsia plaster, regulated diet and digestives such as Papoid.—*Eclectic Medical Journal.*

The editor of the *Prescription* has formulated this treatment for alcoholic catarrh: Sip a tumblerful of hot water on rising. After lunch and dinner take gr. jss Papoid in water a quarter of an hour after eating. [Or one Johnson's Digestive Tablet.]

In the intestinal disorders attending pregnancy, the editor of the *Medical Summary* observes that five grains of Papoid is a specific.

Intestinal indigestion, accompanied by difficulty in assimilating starchy foods, the amyloytic properties of Papoid are utilized by the administration of the Digestive Tablets from half on hour to an hour ofter meals.—*Journal of Balneology. "The Digestion of Starch by Papoid," by Frank Woodbury, A.M., M.D., etc.*

Dr. Wile, editor of the *New England Medical Monthly*, calls attention to the fact that in many cases of indigestion, it is a difficult matter to determine whether the stomach or small intestines is at fault, but in each case Papoid may be used and quickly affords a solution of the whole trouble.

In nervous dyspepsia the editor of *Food* refers approvingly to the administration of a five-grain tablet of pancreatine, before eating a meal, which had given most marked relief in cases in his experience aided by Papoid after eating.

In acute dyspepsia the editor of the *Prescription* gives the following: Castor oil, one ounce; Papoid, gr. iii; tr. opii Mx.; M. ft. one adult dose; or magnesia calcin., one dram; Papoid, gr. iii. M. Take at once.

Dyspepsia and catarrh of the stomach. In a letter to the editor of the *Medical Brief*, Dr. S. Ruark, of Evansville, Ind., reports a case of acute catarrhal gastritis in a woman of 40 years, to whom he gave subtritrate of bismuth and pepsin and a small dose of morphine, which afforded her very little relief. He states: "I gave her everything I thought was indicated, but she grew worse daily, and became very weak and despondent. I then gave her Papoid, gr. iv; sacchar lac., gr. iii; acid boric, gr. ii; M. ft. Chart. Sig. One after meals. The third dose stopped the vomiting. I continued the same treatment and she improved daily until she was well."—*Medical Brief.*

In an article on "Enteric or Typhoid Fever in the Very Young and Very Old" (contributed to the *Daniels Texas Medical Journal*), Dr. W. B. West, of Fort Worth, Tex., reports a case of a child 10½ months old, with diarrhea and typical rose colored spots. His treatment was quinine at night and sulphurous acid during the day. His digestion being much impaired, he used Papoid in two-grain doses every two hours, which "acted like a charm."

Most Active Form

Johnson's Digestive Tablets are the most active form in which the ferment Papoid can be dispensed.

Convenient to Carry

Johnson's Digestive Tablets are convenient to carry. The dosage is accurate, and thus the ferment can be given in divided doses at such intervals as may be desired.

Taste Pleasant

Johnson's Digestive Tablets, having a pleasant, aromatic taste, may be chewed or dissolved in the mouth. Price, $10.40 per dozen bottles, each containing 150 Tablets.

Johnson & Johnson,
New Brunswick, N. J.

THE TREATMENT OF LEG ULCERS.

Dr. Thomas S. K. Morton, of Philadelphia, says that if the healing of an ulcer is retarded by the presence of sloughs, it may be expedient to hasten their suppuration. If already loose at the edges, they may usually be dissected off without pain by scissors and forceps. Otherwise the best plan is to digest them out by means of pepsin or Papoid. He employs a solution of a grain of pepsin and a minim of hydrochloric acid in an ounce of water. But much more convenient than this will be found the dusting of a minute portion of Papoid beneath the protective strips and allowing it to act until the limb is redressed the next day. This succeeds well because Papoid acts best in a concentrated medium of any reaction whatever—pepsin only in dilute acid solution.—*New York Medical Journal.*

INDOLENT ULCERS.

Dr. Arch. Dixon, of Henderson, Ky., wrote to the *Doctors' Weekly:* "Perhaps the most striking example of the efficacy of Papoid is in the treatment of indolent ulcers. It will digest and almost liquefy a slough in a time so short as to be astonishing. Since my first experience with Papoid in this way, I have utterly abandoned the use of the sharp spoon, which was at all times painful and not always satisfactory. If Papoid powder is sprinkled over an indolent ulcer and covered with protective strips, it will be found on redressing in 24 hours, to be almost entirely changed in character; the tough almost fibrous covering of the ulcer has been broken down and disintegrated, the whole or nearly all of it can be wiped off with absorbent cotton, leaving a clean, healthy looking sore, which readily yields to cleanliness and compression equally applied. I have recently treated a case of ten years' standing in this way (which had drifted from one physician to another) with the most gratifying result. Papoid is an antiseptic of great value and its uses in surgery are so manifold as to warrant for it a rich field of usefulness in the near future."

OTITIS.

In a paper contributed to the Journal of the American Medical Association, 1894, Dr. F. C. Heath reports a number of cases to show the efficacy of treatment of chronic suppurative otitis media by Papoid and dermatol. After the parts are cleansed with peroxide of hydrogen properly diluted, Papoid is applied usually by means of moistened applicators. Later on, dermatol will also used. The author believed that this use of Papoid had not been reported before, but in this he was in error, as a number of other cases have been published from time to time.

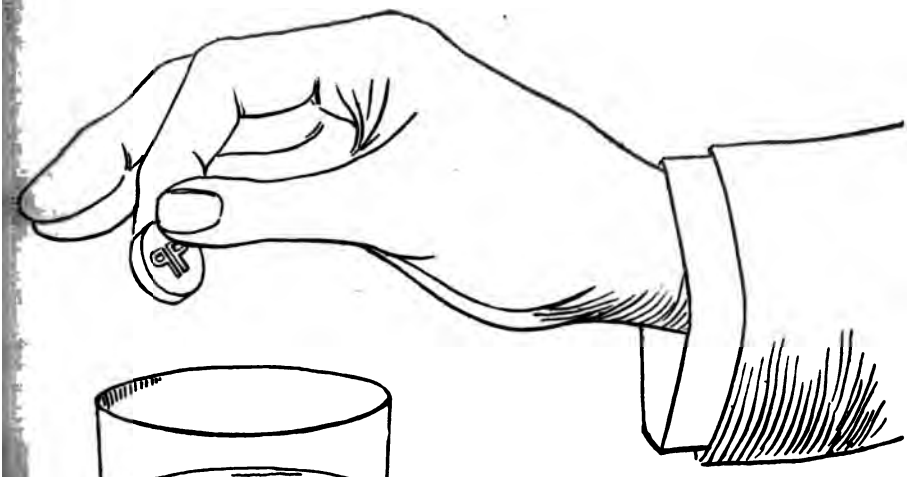
The editor of the *Indiana Medical Journal* writes that "Papoid is recommended as a new treatment of acute suppurative otitis. Cases have been reported where it has proven useful when other remedies have failed."

In suppuration complicated by mastoid disease, Dr. Henry C. Houghton, professor of otology in the New York Ophthalmic Hospital, uses the glycerine solution of Papoid driven through the sinus to the external surface of the mastoid. He objects to the use of the dry powder in the ear, as it may form a crust. In middle ear disease and perforation, in a clinical lecture he says: "A few drops of the solution should be placed in the ear and by the aid of the stomach pump, or aural syringe, it can be forced into the middle ear and through the eustachian tube into the pharynx.

"We possess a very valuable agent in Papoid, which can be used as a local application. My attention was first called to this agent by the late Prof. C. T. Liebold, who was for some years connected with the New York Ophthalmic Hospital. It can be used dry but acts better combined with glycerin.

"To avoid the danger of retaining the products of suppuration, Papoid can be combined with sugar of milk and boracic acid, equal parts."—*Medical Century.*

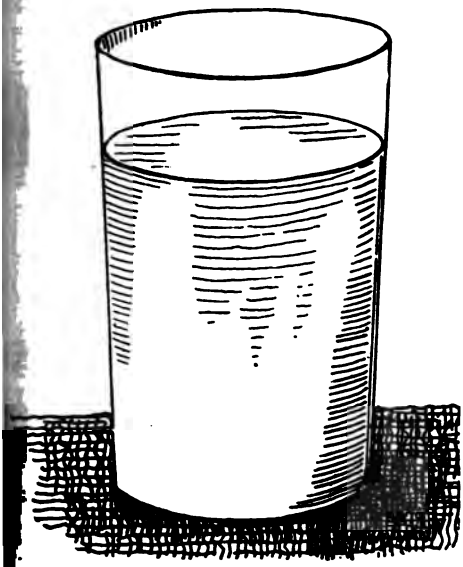
PAPOID is quite harmless to either the stomach or intestines, in healthy or abnormal conditions. Although it exerts great solvent power on dead albumen or fibrin, it shows no such influence on the living tissues of the digestive tract. Papoid is, however, more than a fibrin solvent.



TO DIGEST MILK.

Drop one or two of Johnson's Digestive Tablets in each glass of milk; let the tablets dissolve. The milk can be drunk at once if desired, as the milk digestion will continue throughout the digestive tract. If it is desired that the milk should be well digested before being taken into the stomach, cover the vessel and allow it to stand in a warm place two or three hours.

For infants, use one to two tablets to each bottle of milk. Professor Chittenden has shown that the action of the ferment upon milk in alkaline combination as presented in Johnson's Digestive Tablets, prevents the precipitation of casein in hard, indigestible clots, and gives very marked digestive action. Professor Woodbury has called attention to the fact that the curds of milk under the action of these tablets are soft and flocculent, resembling mother's milk.



DYSPEPSIA.

Dr. Ruark reports briefly two instructive cases of dyspepsia. The first was a German, with a sallow, jaundiced complexion, and constipated. After treating him for nearly a year with pepsin, pancreatin, bismuth, nux vomica, etc., without permanent benefit, he was given Papoid (gr. v) and sodii bicarb. (gr. v) one hour before each meal, three times daily, also glycerin (one dram) just before meals, with light, digestible diet. He reported in five days that he felt better than at any time within five years. The treatment was continued and in six weeks he was able to eat anything with impunity. I have since treated successfully five cases of atonic dyspepsia with Papoid tablets, after the failure of all remedies indicated.

The price of

PAPOID

has been reduced:

Former price $3.50 per ounce.

Present price, $2.20 per ounce.

Dose of Papoid, one to three grains.

CATARRH OF THE BLADDER.

In a patient over 70 years of age suffering with cystitis, Dr. A. J. Park *(Medical Standard)* washed out the bladder three times a week, first with equal parts of milk and water, pretty warm, then with boric acid, and lastly with hydrastin and Papoid. He also took ten grains chloride of sodium in six ounces of hot water every morning, and a mixture of Papoid with soda and bismuth in the middle of his meals. He also had a chalagogue pill at bedtime, and once a week had general massage. Result—recovery and gain of five pounds in six weeks.

CYSTS AND ABSCESSES.

Dr. O. A. Hyde, of New York City, in a communication to the *Medical and Surgical Reporter*, reports a case of sebaceous cyst at the calf of the leg, which had existed for at least ten years. He made a small incision and discharged the contents of broken down sebum and pus, after which he injected Papoid (20 pts.), soda bicarb. (10 pts.), water (100 parts). The injection was allowed to remain from one to eight hours, when a strong solution of hydrogen peroxide was used to cleanse the cavity, after which more of the solution of Papoid was introduced. The injection was repeated once or twice daily. A few weeks of treatment entirely removed the cyst wall and satisfactorily cured the case. He also reported a case of perineal abscess of several months' duration. which was promptly averted by a single injection of an alkaline fifteen per cent solution of Papoid, with cleanliness maintained by the aid of peroxide of hydrogen.

ISCHIO-RECTAL FISTULA.

Dr. A. M. Owen, Evansville, Ind., in the *Medical World*, expressed his satisfaction with Papoid and communicated the following interesting details of a case, one of long-standing (twenty years) blind ischio-rectal fistula: "This case had been operated upon repeatedly and treated by some of the best men in the country. All treatment had failed. I had operated upon and treated the case for about a year, and had given it up as beyond my ability to manage. What I am about to say may seem somewhat startling, but it is none the less true. After proper preparation of the fistulous tract, one injection of Papoid effected a cure; at least, it has been well for about two months. Wyeth says that in surgery, when you are in doubt about the case, always play trumps (the knife being the trump). I say, if you are in doubt about a prescription where the gastro-intestinal tract is involved, play trumps by giving Papoid."

INTESTINAL INDIGESTION WITH LUMBAR PAIN SIMULATING LUMBAGO.

The late Dr. Wm. F. Hutchinson, of Providence, formerly of the United States Navy, wrote: "For two years I have been a victim to constant pain in right flank and back, sufficiently severe to debar walking for any distance, occasionally enough to keep me awake of nights, never quite absent, always nagging and depressing.

"My physician could not tell what was the matter. Appetite excellent, bowels regular, no flatulence, tongue clean and pulse rate normal. Yet I steadily lost weight and strength, until I seriously debated the probability of appendicitis in a chronic form and the dismal prospect of a dubious surgical operation.

"Every form of digestive ferment had been tried and abandoned, there being no apparent indication for their use. The case grew worse until I received a supply of tablets of Papoid, soda bicarbonate and boric acid for experiment. The way was long and hard, requiring various combinations of the remedy, but perseverance met with reward, and today there is nothing left of the long-standing pain, no appendicitis, 'no nothing,' as the boys say. The case was one of obstinate colic indigestion, which everything but Papoid failed to reach. A month or so ago a gentleman consulted me for obstinate diarrhea, with tenesmus and a little blood. I ordered him Papoid tablets, one every three hours, with rest and a diet of bovinine and milk. In twenty-four hours he was well.

"Since then I have used it daily and am satisfied that in a large majority of cases requiring a digestive ferment it fills every demand, or can be made to by careful combination with alkalies and nerve tonics."

The Prices of Papoid Preparations Have Been Reduced.

Here is - seemingly - a very strong point made by Dr. Wile that corroborates clinically the recent chemical research of Prof Chittenden of Yale Univ. to the effect that Papoid acts on all forms of proteid matter and in acid alkaline and neutral media.

Here was a case of big clot in the stomach of a drunkard whose gastric juice failed to have any impression upon, and which violent efforts at emesis failed to remove but which papoid dissolved quickly, thereby saving the man's life.

In many cases of indigestion it is a difficult matter to make a diagnosis as to whether the trouble is in the stomach or in the small intestine. If in the intestine, and pepsin is given, no good results. If the trouble is located in the stomach, and pancreatine is given, the same condition pertains, but in each case papoid is given, the result is a solution quickly of the whole trouble.

I have used it largely in the various forms of dyspepsia and indigestion with most excellent results.

Reproduced Clipping from New Orleans Medical

ACUTE GASTRO-ENTERITIS OF CHILDREN.

Conclusions of a paper by E. H. NICHOLS, M.D., Savannah, Ga.

Mother's milk if practicable.

If impossible, use best artificial foods without milk. Condensed milk, after six months, is a "snare and a delusion," giving no resisting power in disease; on it children do not grow so strong, muscular, or rapidly as they should.

Nightly baths, followed by olive oil rubbing, two drams at a time. Oil reduces fever and regulates the functions of the skin; softens it. Spiced poultices in acute period during first thirty-six hours do good.

Fluid extract hyoscyami is the best nightly opiate.—one to three drops.

High fever calls for purgatives, not antipyretics; bath as outlined. Few drugs are good; phenacetin, salol, bismuth, sulpho-carbolate zinc, are worth trying.

Use rectum for temperature. Beef tea ordinarily no good. Gray powder or calomel and sodi bicarb. if stools are acid. If alkaline, substitute bismuth for the sodi bicarb. (with calomel). Carry litmus paper to test the stools; it will pay you.

In convalescent patients, sterilized or peptonized milk can be **tried** if source of milk is known, **and good**; otherwise not. There should be no exposure to sun in summer. Street-car rides are "godsends" with us. Moderate sunshine and change of air develops the red blood corpuscle, diminishes anemia and promotes appetite and circulation. Never let a child "chill off," even in summer. When frequency of discharges diminishes and temperature rises in convalescence, look out for broncho-pneumonia.

One-half of the fatal cases terminate in the third week. Apply ice to the head very carefully, as children do not tolerate cold long; five minutes on, fifteen off, will sometimes reduce fever and improve diarrhea.

Continued high fever and persistent vomiting, rapid wasting, with severe nervous symptoms, denote death. The termination in boils, thrush, broncho-pneumonia or tuberculosis is unfavorable, and relaxed sphincters, with high temperature and contracted pupils, are bad signs.

Keep the room cool, by towels tacked across the windows, wet with ice water every half-hour. Keep a large piece of ice in the room. Let the child lie in a small hammock between windows; you will see an improvement.

Don't fail to write instructions for parents at each visit.

DIABETES MELLITUS.

Dr. George F. Bates, of Hillsboro, N. D., read a paper before the North Dakota Medical Association, on Diabetes, and reported two cases cured by treatment. The same prescription was used in both cases; Strychnina sulphat. gr. i; podophyllin, gr. viii; codein sulph., gr. xx; Papoid, gr. xxv. Capsule No. xl. Sig.: Take one after each meal.

The patients commenced to improve from the first under this treatment, combined with a strict diet. Sweets and starchy foods of all kinds were strictly forbidden. Gluten flour was substituted in place of ordinary flour. After the digestion had improved, the podophyllin was omitted and the strychnin increased to gr. 1-12. The codein was dropped when the sugar disappeared from the urine.

ECZEMA.

A formula which has been used with great success in this usually intractable disease is: Papoid, gr. xii; acid boric, gr. v; aqua distil. two drams; ft. solution. Sig.: To be painted on the part twice daily.—*New Orleans Medical and Surgical Journal.*

Dr. W. M. Fleming, of New York, states that to remove the abnormal scaly formation of the skin and assist other treatment in eczema, the following has been found to be remarkably successful: Papoid; acid boric, aa half-dram; glycerin; aqua camph. aa, q. s. To make a paste. Apply night and morning, allowing the paste to dry on the skin. It has been reported that the above alone will cure nearly all cases of eczema.—*American Practitioner and News.*

NEURASTHENIA.

The importance of improving nutrition is upheld by Dr. T. N. Love, professor of clinical medicine and diseases of children, Sims College, St. Louis, Mo., in an article on Neurasthenia from the Standpoint of the General Practitioner. The digestion, he says, should be helped in order to secure nutrition in better form in every way possible. "Papoid is an excellent helper of digestion. Remembering that we have a condition of general debility all along the line, tonics are certainly indicated and there is none better in all the world as a toner-up of digestive and general nerve activity than strychnia."—*Buffalo Medical and Surgical Journal.*

FUNCTIONAL DYSPEPSIA.

In a communication with this title Dr. R. M. Page, professor of general medicine and disease of the chest in the New York Polyclinic, stated that, besides regulating the diet, many remedies have been suggested and tried by different practitioners. "Of these remedies I do not hesitate to recommend Papoid as one of the best. It dissolves the abnormal mucous secretions, thus removing a prime cause of fermentation, besides stripping the food of its mucous envelope and thus exposing it to the action of the gastric juice. In addition to its direct digestive action on the stomach's contents, it also seems to have a stimulating effect upon the gastric mucous membrane. Its therapy is not materially interfered with by any of the drugs usually given internally, and it is equally efficacious in acid, alkaline, or neutral media. That it is not destroyed in the stomach, like animal pepsin, is proved by the fact that, even in ordinary doses, a trace of it may be found in the stools, thus showing that the whole gastro-intestinal tract has received the benefit of its action. In cases where diminished peristalsis is marked, accompanied by accumulations of gas in the stomach and bowels, it is well to add strychnine. The average dose of Papoid is about one and a half to three grains *ter die* after meals, and one of the most convenient methods for its administration is in tablet form. Along with Papoid, other remedies may be used."—*New York Polyclinic.*

ATONIC DYSPEPSIA.

"Nourishment in Acute Affections," was the title of a paper read before the Clinical Club by Alfred K. Hills, M. D., of New York, in which, among many others, the following practical suggestion was made: "In cases of indigestion, acute or chronic, we have found Papoid one of the best digestive ferments, and especially as it acts equally well in an acid or an alkaline medium. Papoid dissolves the abnormal mucous secretion, prevents fermentation, stimulates the gastric mucous membrane to normal secretion, besides being one of our most powerful solvents of all articles taken as food, and certainly holds a large place in our armamentarium."

THERAPEUTIC AGENTS.

Dr. D. D. Stewart, of Philadelphia, ad a paper before the section on thera-utics of the Pan-American Congress Washington, September, 1893, en-led "The Measured Effects of Cer-n Therapeutic Agents," among which pecially are Lavage, Hydrochloric id and Intragastric Electricity, in hich the clinical notes of a number of ses are reported. In case No. 2 Pap-d was given "co tinuously for a onth, at first alone and subsequently mbined with beta-naphthol, the latter ing added to influence fermentation, iginating annoying flatulence. Sub-ctive improvement was more decided h Papoid, when taken in doses of four ains and over, than with pepsin and id. Relief from symptoms of indiges-on were immediate, marked and con-nuous during the period in which Pap-d was used. Subsequently, on its ssation, the patient immediately lapsed to her former condition, without any mprovement having occurred in the cretory functions of the stomach at the nd of the thirty days' trial, as shown by he tests then made. The combination f Papoid and naphthol seemed of omewhat more benefit than did the Papoid alone, less flatulency occurring nder the employment of the two. Naph-hol had been previously tried, when trychnine was also taken, in the early art of the treatment, but, without Pap-id, it was of no apparent utility."

FAULTY NUTRITION

in the sense of imperfect digestion and assimilation, is the cause of many disorders that are perplexing and diffi-cult of diagnosis, and proper treatment directed to a perverted condition of the alimentary functions will often cause apparently alarming symptoms to dis-appear with surprising quickness. This fact was very forcibly exemplified to me by the symptoms and the treatment of the case of B. He had intense pain at irregular intervals in the right hypo-gastric region for over six months, and when I first saw him the pain had be-come localized and fixed, although somewhat paroxysmal in its nature, and his face had the pinched and anxious appearance so often symptomatic of ser-ious abdominal lesions. Decided febrile symptoms were present, significant of inflammatory complications—in fact, all the symptoms seemingly indicated ap-pendicitis, aggravated by neglected, if not positively injurious treatment. But it is only the treatment which I wish to emphasize, which consisted of the ad-ministration of one of the powders three times a day. Papoid, gr. xxx; pancre-atin, gr. xxx; soda bicarb., two drams; M. ft. chart. No. xii. Sig. One powder after meals; afterward with the addi-tion of one-sixth of a grain of calomel to each powder, resulting in the relief of the pain in the course of an hour after the first dose, nor has the patient suffered the slightest pain or any incon-venience whatever since.

Digestive Power.

"Papoid possesses the combined powers of the Salivary, Gastric and Pancreatic ferments." —KILMER. (Paper read before New Jersey Pharmaceutical Association.)

Stimulates Natural Digestion.

"Pepsin often relieves a present difficulty; but Papoid, in addition, places the stomach in condition to digest the next meal. It is far better to make the stomach do its own work. Pepsin makes the stomach lazy; Papoid does not."—LARRABEE, Prof. Hospital College of Med., Louisville, Ky.

The Same Thing.

Our Papoid and Soda Tablets have been universally prescribed and endorsed; in fact, to the usefulness of this particular preparation is due the remarkable success of Papoid.

Finding that other combinations of Papoid in tablet form were dispensed when this article was desired, thus causing great confusion, annoyance and disappointment, we have dropped the former name (Papoid and Soda Tablets) for the designation

Johnson's

Digestive Tablets.

Formula — Papoid, Gr. i; Soda Bicarb, Grs. iii; Sacch. Lactis and Menth pip, q. s.

Johnson & Johnson,
New Brunswick, N. J.

CHRONIC GASTRIC AND INTESTINAL CATARRH.

Dr. Laura M. Wright, of New York City, wrote to the *Medical Tribune*, as follows: "For the past year I have treated this class of cases with this new remedy—Papoid—at first timidly, as I had been disappointed in other digestives. Gradually, however, as improvement seemed marked, confidence began to grow, until now I can note many cases, some entirely well, and others, old and long-standing, whose existence is rendered comfortable by the aid of this natural digester. When a patient complains of feeling cross, within two hours after a meal, I reply, take this *cross powder* and you will soon be all right. The powder is composed of Papoid, three grains. This seems to arrest fermentation and neutralize acidity, and thus allays irritation and controls or limits the formation of gases in the alimentary canal. Sometimes I combine calamus, equal parts, especially if there be pain or uneasiness in the bowels caused by flatus, or if there exists torpor and debility of the alimentary canal. When there is an acid taste in the mouth, I combine three to five grains of sodium bicarbonate with one and one half grains of Papoid, and I give one powder before and after each meal. I always expect the happiest results from this treatment. Should there be a softening of the mucous tissues, then I give borate of soda in place of the bicarbonate. In marasmus, I usually triturate Papoid with sugar of milk, equal parts, and give one or two grains at a dose. I have found it to yield good results in both acute and chronic cases. I have likewise found it soothing and healing in that type of sore-mouth which attends and results from derangement of digestive energy."

The editor of the *Prescription* used Johnson's Digestive Tablets, or Papoid, gr. jss; sacchr lactis gr. j; soda bicarb. gr. v; M. ft. pulv. No. j.

The above to be taken before each meal.

Dr. Wm. F. Waugh, of Chicago, carefully regulates the diet and the habits of the patient. If the secretion of abnormal mucus in the stomach is exc sive, it is well to give a cupful of water, containing a little alkali half hour before each meal, and the Pap given immediately before eating. may be administered either in the fo of Johnson's Digestive Tablets, or combination with a minute amount ipecacuanha or of rhubarb. When patient is fond of late dinners and liable to suffer from excessive ind gence in lobster or other delicacies, says that "to these good livers. we allow an indulgence in their favo food, if they slip a few tablets of P oid into their vest pockets, before s ting out for the lodge," but also advi dieting properly before and after feast, in order to escape the effects over-eating.

Dr. Arch. Dixon, of Henderson, K says: "Papoid is indicated in any c where there is a deficiency of the gast juices, no matter from what cause; gastric catarrh, acute or chronic, cases of anemia and general debil productive of deficient blood supply; chronic alcoholism, which is always a companied by an excess of unhealt mucus in the alimentary canal; in t vomiting of pregnancy; and all irrita conditions of the stomach associat with pain and vomiting. In duoden and intestinal indigestion, Papoid is finitely superior to pancreatin." T most convincing proof of the e cacy of Papoid in gastric catar was in the case of a patient up whom I had made a gastrostomy f esophageal stricture (malignant). Fo was passed into the stomach through rubber tube for several weeks. Th food was predigested and nature w aided in every way possible by pepsi pancreatin, etc. Though there was i provement in the general condition the patient, he suffered from an exce of acid and a hypersecretion of mucu which produced most annoying nause Papoid (gr. ii), soda bicarb. (gr. v made into a powder and given aft each feeding, entirely relieved this tro ble. Later on, retrograde dilatation the esophagus was made, enabling t patient to swallow, and for eight month the length of time he lived afterward, h continued to take Papoid and could n be induced to leave it off. Witho Papoid there would be such an exce sive secretion of mucus as to almo entirely preclude digestion."—*Doctor Weekly.*

THE EXERCISE CURE FOR DYSPEPSIA.

The famous Dr. Boerhaave, a Dutch physician, who lived 200 years ago, says *Good Health*, declared that many more dyspeptics would be cured by climbing a bitterwood tree than by drinking the nauseous decoctions of its leaves. The Scriptures declare that he who will not work shall not eat. Nature says, He that eats but will not work, shall not digest. Work is the best of all panaceas for indigestion. By work we mean muscular work, or exercise, and especially out-of-door work.

"The kind and the amount of exercise must be decided by the strength, age, and sex of the dyspeptic, and the kind of indigestion. There is often a displacement either of the stomach or of the colon, sometimes of both, and perhaps of still other abdominal viscera, so that it is important, before beginning a series of exercises, to be sure that these organs are replaced in the normal position and kept there by the proper abdominal supports. Without this precaution, more evil than good would result from exercise.

"The exercise of breathing is important for dyspeptics. Walking, horseback riding, the bicycle, and especially Swedish exercises, manual and mechanical, are of great value in different forms of indigestion. Exercises of the trunk are very helpful in the majority of cases. The following general suggestions relative to the employment of exercise by different kinds of dyspeptics may be useful:—

"1. Hyperpeptics should avoid violent exercise immediately after a meal, in order not to increase the secretion of gastric juice, already too abundant in them.

"2. Hypopeptics and those who suffer from apepsia may take after a meal moderate exercise, because an increase in the secretion of gastric juice is necessary in their case.

"3. In the case of simple dyspepsia, moderate exercise is to be recommended after meals especially if one experiences a feeling of heaviness. This disposition should be fought energetically by vigorous breathing movements or by moderate exercise. The habit of sleeping after meals is very injurious.

"4. In case of ulceration of the stomach absolute rest is generally necessary.

"5. If there is pain in the abdominal region or irritation of the lower part of the spine, and in particular when one experiences 'bearing down' sensations in the lower part of the abdomen or in the back, he must take only moderate exercise until these symptoms disappear, unless, as often happens, he can obtain some relief by the application of abdominal supports.

"For dyspeptics the most favorable time for gymnastics is two or three hours after a meal. Exercise before breakfast is advisable only for robust or corpulent persons.

"Thin or very feeble persons should not, as a rule, exercise before breakfast. The reason is that exercise before the morning meal produces greater effect in breaking down the tissues than at any other time. This fact affords an excellent hint to corpulent persons, who may, to excellent advantage, exercise before breakfast."

Acts in the Intestines.

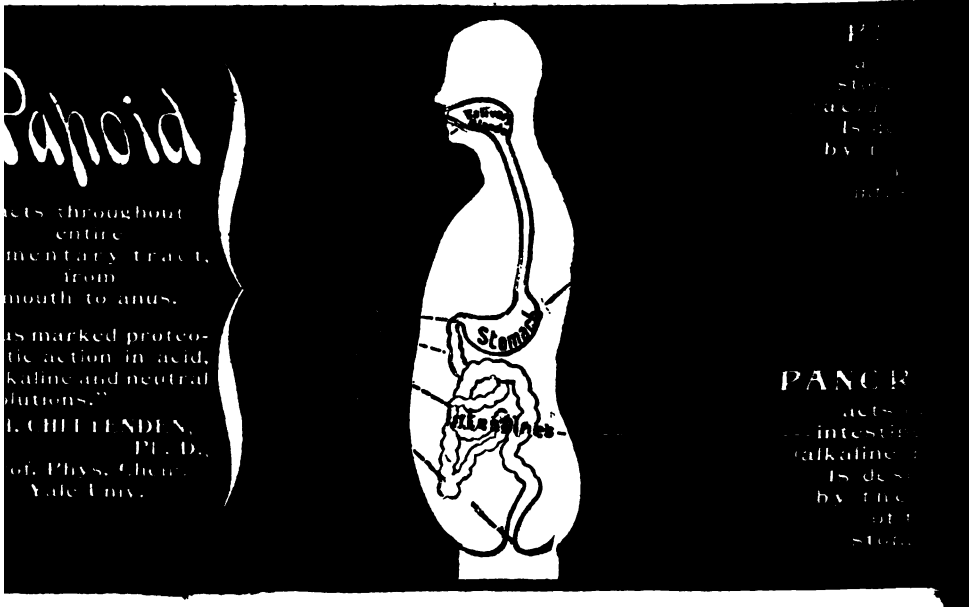
"I have accomplished more with Papoid than I was ever able to accomplish with the best pepsin. Papoid does especially well in gastro-intestinal catarrh and colitis."—DIXON, President Kentucky State Medical Society.

For some years we have been laboring to secure from the German producers a reduction in the price of Papoid. This has hitherto been deemed impossible without sacrificing the high standard of efficiency for which this preparation is noted. However, by improving the method of production, we are able to make a reduction of more than One Dollar per ounce.

Papoid Powder—Former price, $3.50 per ounce. New price, $2.20 per ounce.

Johnson's DigestiveTablets—Former price, $1.25 per bottle, 100 in each bottle. New price, $10.40 per doz. bottles, 150 in each bottle.

Johnson & Johnson,
New Brunswick, N. J.



Dear Doctor:

We have had more than ten years experience as sales agents for Papoid and its preparations. After summing up the very extended reports and criticisms made by the medical profession during all these years, our faith in its value as a therapeutic agent is today stronger than at any other time in its history. Our belief is that in Papoid and its preparations we have a digestive agent with a greater range of action and value as a curative in certain disorders of digestion than resides in any other known substance. This bold claim is based solely upon the overwhelming testimony of the medical profession, who have established the value of Papoid, and who are, or ought to be, the sole judges of the value of any remedial agent.

The greatest legitimate criticism that has been offered against Papoid has been its high cost compared with other digestive agents. This objection has been overcome by our recent marked reduction of the price to a point where, when dose and therapeutic power are considered, Papoid is cheaper than any dyspeptic drug. We are exceedingly grateful for the kind and hearty assistance afforded by the medical and pharmaceutical profession in placing Papoid on its present basis. We shall hope for its continuance, and will appreciate any reports, criticisms, or suggestions that will aid us in our work as purveyors of medicinal agents.

Very respectfully,

(Dict. by R. W. J.) JOHNSON & JOHNSON.

RED CROSS NOTES

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SEP 14 1898

OUR SURGEON-GENERAL

A CHARACTER SKETCH

GEORGE MILLER STERNBERG
SURGEON-GENERAL UNITED STATES ARMY

OUR SURGEON-GENERAL

A Sketch of Brigadier-General George Miller Sternberg, Surgeon-General of the United States Army

"Thou art come into the Kingdom for such a time as this."

Social upheavals, political revolutions, wars, as well as peaceful events, bring certain men rather than others prominently to public view. The subject of our sketch is in this year of our Lord one of the men of the hour. He stands as the centennial presiding officer of the highest medical association of our land, and to him all eyes are turned as being charged with the medical care of the hundreds of thousands of our nation's defenders in this the greatest foreign war in our history.

Since the time of the beloved Lawson, men eminent in science, in medicine, great physicians, able surgeons have in succession filled the position of Surgeon-General of the Army, each adding a part toward bringing the service to a high point of efficiency. Possibly greater than he have worn the epaulets. Possibly surgeons more eminent now fill the chairs of our colleges, handle the knife in the operating theatre, practice in civil life or the medical corps. But it would seem as though the fates had conspired together in selecting as the head of the medical service of our army, just at this time, the subject of our sketch.

For thirty years the service of this department has been a service of peace, the army itself declining to the lowest limit in numbers, has been handicapped by meagre appropriations and scanty recognition. But during these times of our military decadence, medicine has made more progress than in all the centuries since the dawn of history. No pen can clearly depict nor can the mind readily conceive the great changes wrought in medicine and surgery during this revolution and evolution of its principles and practice. Suddenly we are plunged in a war where all destroying engines that modern genius can invent will come against our soldiers. All the world wonders how dangerous and destructive will be the wounds and how well or ill our surgeons will apply the discoveries of science to their care. Before the first gun was fired, medical men were speculating on the probable mortality. While few rejoiced at the prospect of war, when it came all were glad of the chance to witness the effect of modern projectiles and eager to know the results of the application of modern surgery to the wounded in warfare. It so happens that in this war the field of action lies in lands where pestilence reigns, where hygiene and sanitation are unknown, where the air is laden with miasma, where the water is filled with deadly poisons, where a tropic sun pours destruction upon men reared in milder climes. The campaign begins in the most unpropitious season for the health and acclimation of the troops. The greatest demand in this war is for the highest efficiency in its medical service. How General Sternberg will meet the emergency is a question openly expressed, or silently asked. Those who have followed his history will agree that if any man in these United States has had a chance to learn anything about hygiene, quarantine, sanitary science, antisepsis, bacteriology and preventive medicine, it is General Sternberg. He ought to know them well; he ought to know how to sift the grain from the chaff, the true from the false.

That he is capable of practically applying every great and useful truth of

modern science, few will dispute. That, so far as lies in his power, he will do all this to the credit of the nation and the honor of American medicine is the belief of those who know him best.

DAYS OF PREPARATION.

George Miller Sternberg is of humble origin, but comes of good stock. His father, the Rev. L. Sternberg, was a good old German Lutheran Dominie and his mother was Margaret Levering Miller.

Instead of being born with a spoon in his mouth, the General was born with a book in his hand, June 8, 1838, within the walls of Hartwick Seminary, where his father was professor and director. His first steps in the paths of life as well as learning were at this institution. The mind of young Sternberg leaned toward medicine, and his first loosing from his mother's apron strings was to take a position as school teacher at New Germantown, N. J., that he might earn money with which to begin the study of medicine. The story of school masters in those days are generally tales of storms and strifes, district rows and school room riots; but Sternberg's record is of a quiet reign. Unruly scholars could not throw him out of the window, neither did the trustees ask him to resign. Thoroughness, general good will and regret at his departure are traces that still remain to his credit.

At the age of nineteen he entered the office of Dr. Horace Lathrop, at Cooperstown, N. Y., as a student and graduated as M. D. in the class of 1860 in the College of Physicians and Surgeons of the City of New York. Dr. Sternberg had scarcely earned his first fee before the call came for service in the Civil War. He passed the examination in a class of twenty-one, and was appointed as Assistant Surgeon, May 28, 1861.

This was a notable class; Ex-Surgeon-General William A. Hammond stood number one, and George M. Sternberg number twenty-one. Within a few weeks, July 21, 1861, Surgeon Sternberg was baptized into service on the historic field of Bull Run. But he voluntarily remained with his wounded charges and, with scalpel and bandages in hand, was made a prisoner. He was given a parole to care for the sick and wounded, conditional upon his not attempting escape. At the expiration of the parole, he made his way through the lines, reporting in Washington for duty on July 30, 1861, weary, foot-sore and worn.

Sternberg's service record runs somewhat as follows:

Assistant-Surgeon, May 28, 1861; Captain and Assistant-Surgeon, May 28, 1866; Major and Surgeon, December 1, 1875; Lieutenant-Colonel and Deputy Surgeon-General, January 12, 1891: Brigadier-General and Surgeon-General, May 30, 1893; retiring year, 1902.

He has been detailed to many special duties, among them, Member and Secretary of the Havana Yellow-Fever Commission of the National Board of Health in 1879; Delegate from the United States to the International Sanitary Conference of Rome in 1885; detailed by the President of the United States under act of Congress, March 3, 1887, to make investigation in Brazil, Mexico and Cuba, relating to the etiology and prevention of yellow fever, in 1887–89; Consulting Bacteriologist to the Health Officer of the Port of New York in 1892; Delegate to International Medical Congress at Moscow in 1897.

DOCTOR STERNBERG.

Some of his critics put him on the "old school shelf," others paste on him the label "crank." He has openly avowed the most liberal and progressive spirit toward every reputable member of the craft. He has placed himself in the crowd "who have been moving forward upon the substantial basis of scientific research, and who, if characterized by any distinctive name, should be called the *New School of Scientific Medicine.*" He holds that if our practice was in ac-

cordance with our knowledge, many diseases would disappear; he sees no room for creeds or pathies in medicine. He is willing to acknowledge the right to prescribe either a bread pill or a leaden bullet. But that if a patient dies from diphtheria, because of a failure to administer a proper remedy, or if infection follows from dirty fingers or instruments, if a practitioner carelessly or ignorantly transfers infection, he believes he is not fit to practice medicine. Contrary to the opinion of those who would place Dr. Sternberg among the faddists or theorists, he rejects every theory or dictum that has not been clearly demonstrated to him as an absolute truth Dr. Sternberg is in every sense a physician living a life devoted to suffering humanity.

HONORS.

Dr. Sternberg has given good service to his fellows in science, and we find him a member of the American Public Health Association, the American Medical Association, the American Association of Physicians, the American Physiological Society, the American Microscopical Society, the American Association for Advancement of Science, the New York Academy of Medicine, the Pan-American Medical Congress, the Association of Military Surgeons of the United States, the Royal Microscopical Society of London, fellow in Johns Hopkins University, honorary member of the Epidemiological Society of London, of the Royal Academy of Medicine of Rome, of the Academy of Medicine of Rio de Janeiro, of the American Academy of Medicine, of the French Society of Hygiene.

The University of Michigan, in 1894, and Brown University, in 1897, conferred upon him the degree of LL. D.

But, as he expresses it, "To maintain our standing in the estimation of the educated classes, we must not rely upon our diplomas or upon our membership in medical societies." Work and worth are what count.

THE SURGEON-GENERAL.

Among the throng of military officials who in these stirring days hurry in and out of the war building at Washington, our subject would not be taken for a general; you would recognize him as a soldier who has passed through long arduous, earnest campaigns, but even his uniform, sword and medals do not build him up to a typical general. He is without the assumption, the bluster and blow, the "I am" halo. But step into his headquarters and you will find that he is in every sense the head of the service, the chief whose will governs all. That modest, unassuming man is most exacting, a man of command, of thorough execution, a general whose eyes comprehend every microscopic detail, who has studied the *personnel* of every member of his corps and can work them with the rapidity and precision of a machine gun. He is a general, and in the momentous campaigns now before him has mapped out every inch of ground that will be covered. In thirty-seven years he has, step by step, gone from the foot of the class, to the head of the department and has carefully measured every fractional part of an inch as he passed by. He knows in his favorite way by experimental evidences every need, every capacity, every shortcoming of the service. He is familiar by actual demonstration in his own hands with every appliance or method that could be of possible use in military medical service, either in war or in peace. He has lived in the land where the battles of the present war will be fought and knows its every feature of soil and climate. He has studied the germs of yellow fever infection in their habitat, with culture tubes and microscope in hand, and with its poisonous virus coursing through his own veins.

Medical men often experiment on the office boy or cat, but this latter picture of our Surgeon-General delving for microbes in the slime of Havana harbor,

and contracting yellow fever is characteristic of his peculiar method of verifying everything for himself. From the front and rear, behind and in advance, he has gone over the ground and anticipated every condition that could arise in the care of the health of the troops committed to his charge, and so far as lies in his power he is prepared to meet any and every emergency.

There will be no aftermath of death, like that which followed the campaigns of the civil war; every achievement, every advance made in the science of medicine and surgery will be systematically and thoroughly applied for the preservation of the health of the army of the United States.

BACTERIOLOGIST.

When the over-zeal of enthusiasts shall have passed away and the story of bacteriology in the nineteenth century is written up it will probably be found that the chief among those who brought light out of darkness was George M. Sternberg. He will be noted, not so much for his brilliant discoveries, but rather for his exact methods of investigation, for his clear statements of the results of experimental data, for his enormous labors towards the perfection and simplification of technique, and finally for his service in the practical application of the truths taught by the science. His early labors in bacteriology were made with apparatus and under conditions that were crude enough. To a layman there seems to be a sort of irony that led him to prophetically name some of the species of bacteria which he discovered, "baccillus Havanaiensis." His labors in bacteriology are faintly revealed in the bibliography accompanying this sketch.

HIMSELF.

As the Surgeon-General, the physician or the man he is modest and unassuming; he is always busy, but seemingly never in a hurry. Everything is well done and done systematically. He thinks and works all the time without waiting for moods. He takes no man's dictum; nothing to him is an established fact until he has personal experimental evidence of its truth. Work that must in part be performed by others, must come under his review. In this way every appointment made in the service, every detail of practice, every grain of drug, every inch of bandage, every needle, the smallest articles of supply are bought and delivered. Nothing is too small, no task is too laborious for his attention. It is his way to personally care for the health of the commander-in-chief or the most obscure private as well as to personally conduct and execute the policy of the medical board.

His office and himself are object lessons in order and cleanliness. Just now, with the care of a couple of thousands of patients, it is one of the busiest medical offices in the universe, but it has not a speck of dust or dirt from floor to ceiling. Every nook and corner is nearer the point of surgical cleanlinesss than many men will ever realize. And he, from his iron gray hair to the soles of his shoes, looks aseptic. Contrary to the ordinary ideas of a man who is steeped in science and a deep thinker, he is a social favorite and an accomplished host.

Dr. Sternberg would never make a success as a campaign orator. His addresses are most carefully prepared, full of serious argument founded on absolute facts, culled from his own research. They are in language so plain as not to be misunderstood, but they do not contain a line of sentiment and are delivered in an easy conversational style; thus, while they command the respect and the hearer catches every word, there is not a line put in for gallery play and they arouse no enthusiasm. Though he has written an enormous amount, he believes that the pen is a feeble instrument in science when compared with the test tube, the microscope and the chemical balance. His writings are, therefore, pen pictures of his results in the laboratory and clinic room.

STERNBERGANA.

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Bacteria, and the germ theory of disease. 8 pp., 8°, Sacramento, Day & Joy, (n. d.)
Report on the etiology and prevention of yellow fever. 271 pp., 21 pl., 8°, Washington.
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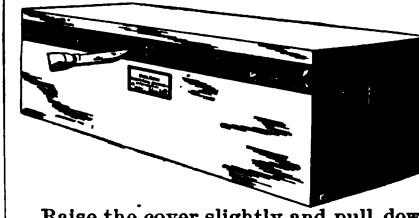
Reports of the Surgeon-General, U. S. Army, for the years 1893, 1894, 1895, 1896. 1897. 8°. Washington, Govt. Print. Office.
Protective inoculations in infectious diseases. 21 pp., 8°, Concord, N. H., 1893.
Address to the members of the Pan-American Medical Congress. 19 pp., 8° Chicago, 1893.
Immunity, protective inoculations in infectious diseases and serumtherapy. vi, 1 l., 325 pp., 8°, New York, W. Wood & Co., 1895.
A text-book of bacteriology. xi, 693 pp., 9 pl., 9 l., 8°. New York, W. Wood & Co., 1896. (2 editions).
Researches relating to the specific infectious agent of small-pox and the production of artificial immunity from this disease. 30 pp., 12°, Chicago, 1896.
Researches relating to the etiology and specific treatment of yellow fever. 20 pp.. 12°, Philadelphia, 1897.

HOW TO OPEN THEM.

Readers of the Notes have asked how to open the patent gauze containers that Johnson & Johnson are sending out, holding twenty-five and one hundred yard rolls. It is a simple problem. The gauze in these containers is folded in nine-inch widths for twenty-five yard rolls, and in eighteen-inch for hundred yard rolls. They are tightly rolled, put in the box, sterilized and tightly sealed. To open the box, cut around the strip seal with a sharp knife as here shown.



Raise the cover slightly and pull down the flap in front, next, with surgically clean hands, or sterilized forceps, reach in and grasp the end of the roll and pull out as shown in the cut.

Cut off the amount of gauze needed with sterile scissors, tuck back the end and close the box. Keep the box closed and the remainder cannot become contaminated. It is never necessary to raise the box lid entirely, but even this may be done in a room free from dust. If there is any reason for believing that the gauze has been accidentally contaminated, it is only necessary to cut off the outer portion of the roll, the inner portion will be found sterile.

OFFICE OR FACTORY-MADE DRESSINGS, WHICH?

BY GUSTAVUS M. BLECH, A. B., M. D.,
CHICAGO, ILL.

In these days of non-poisonous antisepsis and ideal asepsis, the question of dressings, particularly that of gauze, is one of the most important.

The general practitioner, in fact almost every surgeon in the country, settles the question of gauze and dressings easily by using those offered to the profession by enterprising manufacturers, relying on the reputation, integrity and skill of the manufacturing chemist.

In an able address before the last meeting of the American Medical Association, Dr. Edward Boeckmann boldly asserted that all factory-made dressings and gauzes are a humbug, adding that the goods are sterilized when packed in hermetically sealed glass containers, which of course is useless, as the steam cannot penetrate glass, a procedure contrary to all common sense, and which, to my knowledge, is *not* practiced in all factories.

It was not my privilege to listen to the paper and therefore could neither correct this statement, nor defend my position, which gives preference to reliable factory-made dressings for reasons I shall mention below.

Dr. Boeckmann's paper necessarily elicits the following question: *Shall we in order to treat traumatic and surgical wounds aseptically, prepare our own gauze and dressings, or shall we rely on goods prepared in the laboratories of the chemist?*

Before answering this question, let us see whether a similar condition of affairs in the profession does not exist in the pharmaceutical line. Suppose I desire a certain tincture. My friend, N. G. Justasgood, Ph. C., supplies me with a diluted fluid extract instead of a tincture according to the U. S. P. Would this be a good reason why I should spend time and money in percolating my own tinctures? I may just as well buy leather and sew my own satchel. Every recent graduate knows the name and address of many a large pharmaceutical house which has become famous for the manufacture of reliable tinctures, extracts, tablets, drugs, etc.

Practically the same holds good with respect to dressings.

The writer knows of many an enterprising druggist or instrument dealer who wipes off a lunch-table in the rear of his shop with a dirty towel and cuts long strips of gauze and packs them in jars, bearing on the label his name, more for advertising purposes than anything else. I shall lay no impure motives at the feet of such gentlemen, but that much is fact. They are so ignorant that they do not even know that gauzes thus prepared are apt to produce serious if not fatal results, if used in delicate or dangerous surgery.

I have subjected pieces of gauze from such sources to microscopic examination, and they proved far from sterile. While I am not prepared to say whether the germs seen were pathogenic or non-pathogenic, having made no cultures, *I know that ideal pieces of gauze should be free from germs* or they are unfit for use. It goes without saying that the greatest care was taken not to infect the gauze, during its removal from the jar to test tube and afterwards.

Dr. Boeckmann's criticisms are mild indeed, when such "manufacturers" are meant—such men and their goods are not only wilful or ignorant humbugs, but criminals—their goods poison, produce suppuration, septicemia and death!

But because such men exist that is no reason why we should go to the expense and trouble of preparing our own dressings, inasmuch as there exist in our own country laboratories, recognized by by even European authorities, contrary to their respective nation's interest, as leading in that particular branch of industry. So, for instance, the methods and machinery employed by the well known

firm of Johnson & Johnson of New Brunswick, N. J. have received praise in several German papers. The writer has used their moist gauzes for years and has yet to see a single case of suppuration!

The advantages claimed for self-made or even hospital-made dressings are that they are sterilized when needed and reliable. May the Great Unknown forgive all the sins of omission and commission made by surgeons in their houses and by trusted nurses in hospitals in the preparation of dressings!

A few leaders in aseptic surgery have recently raised their voices against errors committed while operating on a living subject, when we strain every nerve to be as perfect as possible; who will think for a second that a great error has been committed by touching one's head, adjusting glasses, or wiping away perspiration! How much more are we apt to commit errors in the apparently simple work of preparing dressings. Will we subject our hands to the tedious task of disinfection to make two yards of gauze? Yet, this would be necessary, for we might have on us the contagion of scarlet puerperal, or typhoid fever. Patients with gonococci, have been perhaps an hour previous in the same room, followed by a phthisic, coughing and spitting up thousands of bacilli tuberculosis. Who will take care to boil scissors and forceps before cutting gauze; who will put an aseptic sheet over the table on which to work; who has the time for all such details—when even only partly engaged. When shall there be time left to eat, sleep, for studies, recreation, urinary analyses, microscopic examination, writing an article or letter, if we are to play our own gauze-makers. Dr. Boeckmann is wrong—we cannot afford to make our own dressings, in which opinion I am concurred by the eminent editor of the journal of the American Medical Association, Prof. Hamilton, who as a surgeon, teacher and writer is second to none.

A visit some time ago to the laboratories of Johnson & Johnson convinced me of the following:

1. The crude material selected is the best.

2. Every operator is familiar with the technique of aseptic precautions and is obliged to undergo the same task of surgical purification, as if required to perform a laparatomy.

3. In the aseptic room, everything is not only aseptic in the strictest sense of the word, but all possible precautions are taken to prevent any carrying in of germs.

4. Dressings undergo several processes of sterilization in improved machinery.

5. The glass jars in which the gauze is packed for shipment, have glass covers, sealing the jar hermetically, and are rendered aseptic before use.

6. Final sterilization is *not* made *after* packing, but *during* packing and before sealing.

It would require too much space to recite all the rules and regulations laid down for the operators (graduate nurses) in that laboratory—suffice it to say that many a young surgeon would profit by studying them and their various reports published, as they give a good idea what mechanic, chemic, thermic means must be brought into a play to produce deal asepsis.

PAPER BULLETS.

Aluminum-covered paper bullets have been suggested by a French officer, and have been found equally effective in wounding the enemy and placing him *hors de combat*, while the after-consequences of the wounds are far less serious than with the bullets now in use. The precision of the shot is not affected, and the bullet cuts a clean hole that tends to heal rapidly.—*Med. Post.*

STERILIZATION OF SYRINGES.

Prof. Hofmeister has found that leather, like catgut, can be effectively sterilized without the slightest injury by soaking it in a 2 to 4 per cent. solution of formalin and then boiling it. Syringes that screw together, instead of being glued or cemented, are better adapted to this method. The water in which they are placed to boil must not be hot enough to crack the glass. —*Jour. Am. Med. Assn.*

STATE OF KANSAS.

HISTORICAL SOCIETY.

Topeka, Kan., July 5, 1898.

Johnson & Johnson,

New Brunswick, N.J.

Gentlemen,---

In behalf of the Kansas State Historical Society I write to request the gift of your "Red Cross Notes" for binding and preservation in its library. By so doing you will greatly oblige

Yours truly,

F. G. Adams,

Secretary

RED CROSS NOTES.

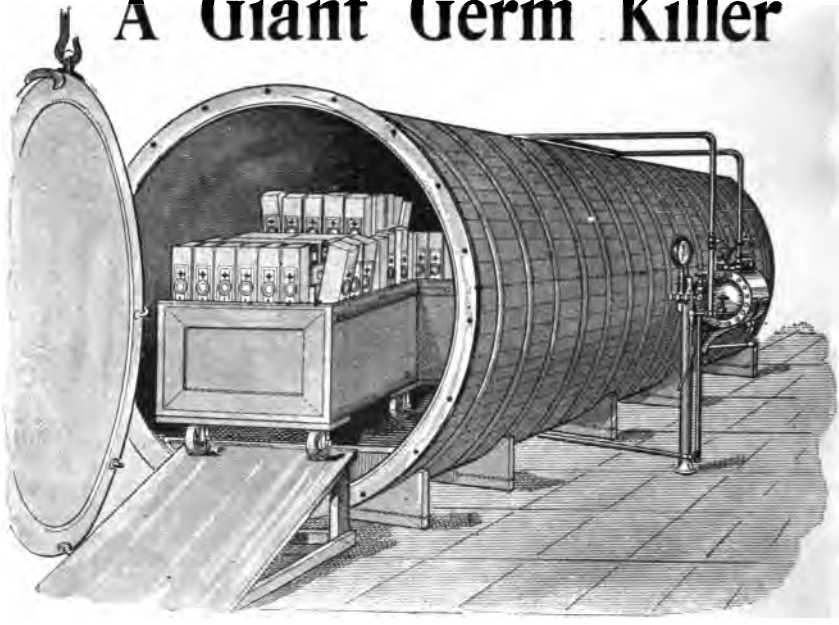
The leaflet known as RED CROSS NOTES is now in the second year of publication. Starting out as a supplementary circular to the regular issues of monographs from the laboratories of Johnson & Johnson, it has grown beyond the anticipation and intention of its initial number. From the responses received from its readers, there is every reason to believe that it has found a welcome, and in fact, that every number has been read and re-read. This is sufficient excuse for its appearance and a warrant for its continuance. It is, however, desirable by the way of apology, to say, that these notes are written in a busy laboratory, the scratching of the writer's pen is accompanied by the whirl of a thousand revolving wheels. The air of the editorial room, is redolent with odors of drugs and fumes from chemical antiseptics; the productions have the laboratory smell and are stained with the contents of the test tube and graduate.

While the author's hand is recording notes, his mind must be upon the contents of his beakers, flasks and the reaction going on at his side. It is quite evident that whatever may emanate from such an atmosphere and surrondings, will bear no traces of rhetorical finish nor any great claims as to accuracy; but, whatever, may be their worth they are sent abroad as a contribution to pharmacy, surgery and medicine.

The person who is charged with the duty of compiling these notes desires farther to say that he is willing to accept the blame for all that is bad, that the credit for all which is good may be assumed to belong to others, even where no authority may be noted. As for the rest, the publishers may be looked to as the responsible parties.

Contributions or correspondence upon any of the subjects herein treated will be received gladly, and if suitable will be published.

A Giant Germ Killer



VACUUM VAPOR STERILIZING CHAMBER. THE LARGEST IN THE WORLD.
JOHNSON & JOHNSON'S LABORATORIES.

In the laboratories of Johnson & Johnson are several sterilizing chambers. The one shown in this cut is notable as being the largest germ-destroying machine ever constructed, and when erected was unique in being the only one of its kind. A second one of the same pattern is now being installed in these laboratories. Three thousand pounds of cotton or five thousand yards of gauze can be stored in this chamber and every fibre charged with germ-destroying vapors at one operation. The apparatus is very simple, but very complete. The main chamber is a steel cylinder, one end closed, the other fitted with a tight door hung on a tramway. When the chamber is filled with dressings this door is tightly closed and vacuum is created by means of a steam exhaust. This exhaust will draw a vacuum of 20 inches in as many seconds. When a proper vacuum is reached, dry formaldehyde vapors are let in the chamber under a pressure of 80 to 100 pounds. Under the vacuum pressure these vapors penetrate the fibre almost instantly, even in packages which are tightly wrapped in paper or cartons.

Experience has demonstrated that under these conditions it is possible to penetrate and destroy disease-producing bacteria in fifteen minutes, with as little as five per cent. of gas. In the practical working of the chambers it is, however, deemed advisable to err on the side of absolute safety. Using 20 per cent. vapor and prolonging the exposure to several hours. After exposure, the vapors of formaldehyde are exhausted, air is let in, any remaining excess of vapor is neutralized and the chamber opened.

The generator used in this apparatus was especially constructed for producing dry formaldehyde vapors. It is probably the largest generator ever made, and will produce a thousand cubic feet of dry gas in five minutes. The apparatus is very complete and its working has shown it will give rapid and efficient sterilization, and is truly a giant germ destroyer.

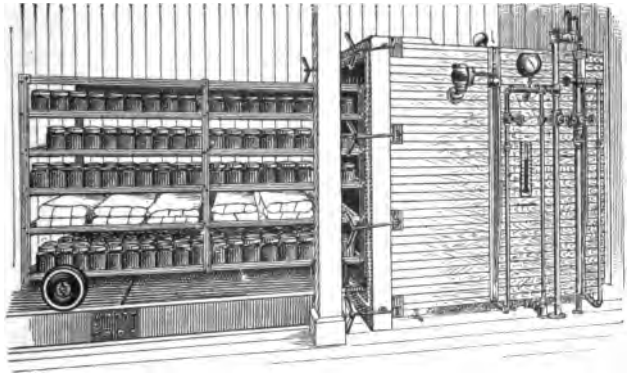
Germ Destroyers

...IN...

Johnson & Johnson's Laboratories

LIGATURE BOILER.

The Cruiser "Vesuvius."
Formaldehyde Generator for Disinfecting Aseptic Working Rooms.



The "POWERFUL"—Steam Vacuum Sterilizing Chamber.

CAUTION

THIS PACKAGE CONTAINS ASEPTIC DRESSINGS

DO NOT BREAK SEAL, OPEN THE PACKAGE, OR REMOVE THE CONTENTS EXCEPT UNDER ASEPTIC PRECAUTIONS PREPARED, PACKED, STERILIZED AND SEALED UNDER THE SUPERVISION OF Elizabeth Wickham GRADUATE NURSE

JOHNSONS ASEPTIC LABORATORIES NEW BRUNSWICK N.J.

THE NURSE IN CHARGE PUTS THIS SEAL ON EVERY JAR.

JOHNSON & JOHNSON'S BOYS IN BLUE.

It may be of interest to know that many employees of the firm of Johnson & Johnson have gone to the front to do duty in their country's service. Something like a dozen of employees from their traveling force and factory are now serving in the ranks.

Immediately upon the first call for volunteers, Mr. Richard Gwathmey, one of their salesmen in the southern territory, responded; he immediately received the following letter from the firm.

NEW BRUNSWICK, N. J., April 25, 1898.
MR. RICHARD GWATHMEY,
RICHMOND, VA.

Dear Sir:—

We have your letter of the 24., and congratulate you upon the patriotic proposition contained therein.

While we shall greatly regret to lose your services, and would be loath to consent to having you go for any other cause, yet under existing circumstances, we not only most heartily applaud your action, but will be glad to render you every assistance in our power. Not only will we be glad to keep your place open for you, but will also continue your pay the same as heretofore during your entire absence. We feel very sure that the friends left behind will see that your interests do not suffer from any standpoint.

We again congratulate you upon your decision, and upon the fact that although a southern man, you are the first among all our employees to take this step.

Wishing you good health and good luck, we are,

Sincerely yours,
JOHNSON & JOHNSON,
R. W. JOHNSON, *Pres.*

Upon his departure with his regiment, Mr. Gwathmey sent the following letter to his customers:

RICHMOND, VA., May 9, 1898.

My Dear Sir:

In response to the call for volunteers, I have enlisted in the Virginia militia, and am now at Camp Cuba Libre, awaiting orders to go to the front. On this account I will be unable to call upon you to solicit your valued orders.

Upon hearing of my wish to volunteer in the services of my country, my employees, Messrs. Johnson & Johnson, at once congratulated me upon my intention and assuring me that they would not only be glad to hold my position open for me upon my return, but would allow me my salary during my entire absence. It is needless to say how highly I appreciate their unexpected generosity, and that I am more than anxious that their business interests in my territory should not suffer because of my absence in the field in the service of the old flag. I therefore take this method of letting you know the reason of my not calling upon you and to ask that in ordering you will remember Johnson & Johnson and either specify their goods from the jobber or send your orders direct to the house. In so doing I believe you will not only be well served, but will incidentally show that you appreciate their liberality and loyalty to their country.

Thanking you for your past favors and again asking that you remember them in your orders and at the same time you will not forget

Yours truly,
RICHARD GWATHMEY.
Virginia Volunteers.

Another salesman from the New York office, Mr. G. W. Corwin, is now with the 71st New York Volunteers at Santiago. In addition to the above mentioned liberalities, when the first announcement was made for a popular loan to support the government in the prosecution of the war, Messrs. Johnson & Johnson circulated through their laboratories a subscription list to the loan, and over $100,000 was subscribed in small and large sums, the firm bearing all expense connected with this subscription, forwarding payments, etc., so that the signers will receive the full benefit that may accrue. This was done long before it was supposed that the loan would become such a popular success.

HOW TO USE CORN PLASTERS.

Dr Alsnel, writing on the treatment of corns, mentions a "tip" communicated to him by a layman concerning corn plasters. Instead of applying them whole as purchased, the advice is to cut the plaster in two across the centre, and then apply the two sections round the base of the corn. This method afforded relief at once, and in six months the corns were got rid of. The two sections can be fitted round the base of the corn accurately and tightly, in a way that is impossible when dealing with a ring uncut.—*Lancet.*

STERILIZATION BY PRESSURE.

"GERMS CRUSHED TO DEATH."

The problem of disinfection without the aid of chemical agents is one which is of interest and along which line much work has been performed in the laboratories of Johnson & Johnson. In these experiments they have used such agents as electricity, gases, vapors, friction and pressure. The general method pursued was to infect fibres with a nutrient fluid containing bacteria, then to subject the infected fibres to the action of the sterilizing agents. The results of a very long series of experiments may be summarized briefly as follows: Electricity was not effective upon the organisms except when electrolysis took place, as for instance, when water or a solution of salts was used as a medium for the transmission of electrical energy. It was found, however, that certain gases, when passed through the fibres under pressure, had a decided germicidal effect. The experiments also brought out the fact that during the processes of carding cotton and other fibres, the fibres are subjected to prolonged friction, with consequent development heat and electrical action. The results upon infected fibre passing through the processes were very interesting and tended to show that sterilization could sometimes be accomplished in this way. The most interesting results were obtained by the many hundred trials made to ascertain the value of pressure as a sterilizing agent upon surgical materials. It was found that infected fibres could be sterilized by a pressure varying from 50 to 200 tons to the square inch. In other words, that such a pressure would actually crush out germ life. It was found that this process was greatly aided, if oxygen gas or even common air was forced through the fibre, under great pressure. The only drawback to practical application seemed to be that it was found necessary that the fibres should be quite even layers, otherwise the pressure was unequal and the action uncertain; but it found that the process could be utilized in the sterilization certain forms of dressings.

Bernays' Sponges and compressed absorbent cotton were some of the results of the experiment. In Bernays' Sponges the cotton fibres are reduced in bulk from 5 to 20 times.

The compression of absorbent cotton with so great a pressure as this would tend to pack the fibre too closely to make it of practical use. A reduction of about ⅓ in bulk was as far as was found to be allowable.

Compressed absorbent cotton as put upon the market by Johnson & Johnson has the advantage of reduced bulk. The fibres being crowded closely together has a tendency to increase the capilliary action and enhance the absorptive power.

Contrary to what would be expected, the elasticity of the fibre is increased. During the operation of compression, friction and electrical action are evolved, together with a certain amount of oxydizing action, these with the great pressure act as sterilizing agents, but in actual practice after compression, the cotton is subjected to vapors of formaldehyde to insure sterility. This form of compressed absorbent cotton has been found of great utility in the army service where reduced bulk is a great desideratum.

NEW GAUZE CONTAINERS

The Gauze is folded nine inches wide for the twenty-five yard lengths, and eighteen inches wide for the one hundred yard lengths. They are tightly rolled, wrapped and then sterilized by the vacuum vapor process and sealed.

Sterilized Gauze in Johnson's Aseptic Containers costs no more than the common kind.

JOHNSON & JOHNSON

New Brunswick, N. J.

FULL OF GOOD IDEAS.

VIDA A. LATHAM, M. D., D. D. S.,
Director of the
Microscopical Laboratories.
808 MORSE AVE,, ROGERS PARK,
CHICAGO, ILL., June 17, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Dear Sirs—Your RED CROSS NOTES came duly. In my correspondence, which is large, I find many places where the NOTES come in handy. Especially in such work as Asepsis, Bacterial Disinfection, Disinfection of Hands, &c. Would not some practical hints in your NOTES be of value to many young physicians in western southern states who seldom see such work as is done in the cities? Especially so, coming from such an authority as *your firm*. Preparing for operations, preparing sutures, needles, hands, &c., and at the same time show the immense amount of time and labor saved by using your supplies. Also their great value in railroad, mining and emergency surgery.

I wish you could see your way clear to put up a small cabinet, 30 or 40 inches high, as a cupboard or wall case containing jars or special cans with the usual materials for surgery in the office. Fitted say with jars or tins having four or five rolls, various widths of self-adhesive, protective, absorbent cotton, medicated cotton, gauze bandages, lintine, lint sponges, sutures, needles, &c., and a drawer under for small case of instruments (pocket). Everything is in its place, handy and neat. This is particularly so at large plants, machinery iron works, &c., kept in the office. You could have two styles, large and small, or the case made after selection to fit your jars or caddies. It is often deplorable the loss of life, blood or time at railway accidents, (even occurring at city depots) whilst the doctor *collects* things, and then forgetting many odds and ends. The case should be placed in the depot master's office, under lock and key, or in the surgeon's room. I have seen this so often I believe a ready sale could be had if you got up such a case for a reasonable sum, and when jars empty they are easily renewed.

I should much like a sample of your Ligature Packets, and will send postal order for same. I agree regarding catgut, &c., in juniper, carbolized oil, it getting gummy, evaporating and I believe questionable if once opened.

Your small packets of Gauze are a new idea to me. I always got the five yard cans or jars. To many wheelmen, I supply a small list of your preparations in *small* packets, to put in a small roll case or keep in the tool-box for emergency work. I found a good use the other night, when a man was brought to me with a hole in the outer L of the orbit through a bad fall. Head, face and hands cut. A man nearby had the little case and stopped hemorrhage and put on J. & J. Borated Gauze, Medicated Cotton, and a Bandage. It saved me a nasty wound to say nothing of the patient's comfort.

Have you not some good non-irritant soap that is aseptic and will not corrode instruments, and that is handy in a cas ? I suggest Hg. Cl_2 to the wheelmen for want of better or Carbolic.

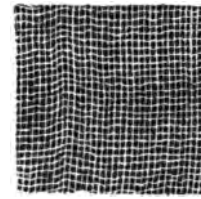
Pardon the length, but I am thankful we are getting cleanliness in *homes*, to say nothing of antisepsis. Asepsis is impossible or nearly so for the public in injuries yet, and we resort to your preparations.

Thanking you,

V. A. LATHAM.

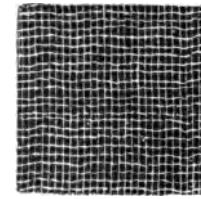
STANDARD GAUZE.

There is a great variation in the gauze cloth offered in the market for surgical purposes, much of it is unsuitable for wound-dressing. Some sellers quote gauze under a fanciful name or number at a price much above its actual value.



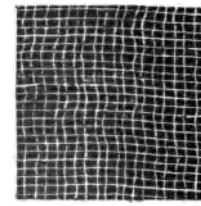
Hospital Standard Gauze, No. 1. 32x28.

After a careful study of the needs of surgery, Johnson & Johnson have adopted grades shown on this page. These standard gauzes are rolled in twenty – five and one hundred yard lengths and packed in patent dust and dirt proof containers, sterilized and sealed.



Hospital Standard Gauze, No. 2. 28x24.

Every yard of surgical gauze in the laboratories of Johnson & Johnson is absolutely sterile and aseptic. Any dealer can furnish these standard gauzes at manufacturing prices, which are no higher than the price of the common kind. To get standard gauze, surgically clean, at the right price, the physician should look for the Red Cross and specify Johnson & Johnson.



Hospital Standrd Gauze, No. 3. 24x20.

HOW UNDERTAKERS USE LINTINE.

LINTINE.—This is a superior preparation of absorbent cotton, made into sheets of uniform thickness and has the absorption qualitiesof a sponge. When saturated with fluid and applied to the face the bleaching process is accomplished with but few applications on account of the length of time Lintine will hold moisture. Applied to the face of body being shipped, it reaches its destination with a moist, fresh appearance and the friends are pleased. In this connection alone it is invaluable to any undertaker. It readily accomodates itself to the form of the features so that every part of the face, hollow or prominent, comes equally in contact with the the fluid and all is bleached. Lintine is also indispensable as an absorbent in dropsical cases.—*From a circular of Durfee Embalming Fluid Co, Grand Rapids, Mich.*

SPANISH ARMY PHARMACISTS.

The "Sanitary Corps" of the Spanish Army, like that of most European nations, includes a complete and properly-graded body of pharmacists.

The number of Army Pharmacists fluctuates with the necessities of the service. An eloquent proof of the exertions made by the Spanish authorities to retain Cuba and the Philippines may be read in the figures tabulated below.

On January 1, 1898, the military pharmacists were distributed as follows:

1898 (FARMACÉUTICOS.)

	In Spain.	Cuba.	Philippines.	Porto Rico.	Total.
Inspector 2° clase	1	..	..	..	1
Sub-inspector 1° clase	4	1	..	..	5
Sub-inspector 2°	3	1	1	..	5
Farmacéutico mayor (head pharmacist)	10	11	4	..	25
Farmacéutico primero (first-class pharmacist)	22	24	9	2	57
Farmacéutico secundo (second-class pharmacist)	28	17	6	..	51
Provisionales (temporary pharmacist)	9	10	8	..	27
	77	64	28	2	171

A LONG STORY MADE SHORT.

MEMPHIS, TENN., May 22, 1898.

To Johnson & Johnson, New Brunswick, N. J.:

I received a sample tin box, oval and striped, marked "Johnson's Digestive Tablets," said to cure "Dyspepsia and Indigestion." I never pay any attention to samples of Pepsin, never prescribe them, for the reason that it is absurd to think that a substance secreted to digest the food of one animal, would or could, be fit to do so in another animal. To make a long story short, I presented one of my patients with your Digestive Tablets and he says, "they benefited him more than anything he has used in thirty years." I am curious to know if this is a coincidence, or was it due to a curative principle in the medicine. I have several other patients who are suffering in the same way, and have been for many years. I wish I could find one remedy that could be relied upon to cure any one thing, after forty-five years of practice. The few tablets you sent, in the unique little striped box, were not sufficient to test the value of the tablets.

If you will send a bottle of tablets containing 150 tablets by express to Dr. William Hewitt, 243 Main street, Memphis, Tenn., and they have the same effect on others as they have had on the one who tried them, then I will pay for them, and send other orders. This may not be your way of doing business; but it is mine.

Very respectfully

\ . HEWITT, M. D.

"SECRET" AND "PROPRIETARY" PREPARATIONS.

There seems to be a great misunderstanding and misuse of these two terms. Some persons use them as if they were interchangeable, and even make the word nostrum synonymous. It would appear unnecessary to say that everything that is advertised must be owned by someone, have somebody as proprietor—*i. e.*, be "proprietary" in order to have someone to pay for the advertisement. Chairs and bicycles and cod-liver oil, if they have the distinctive name of certain maker attached to to them, are proprietary medicines. We have heard copyrighting spoken of as if it were something wrong and shameful, whereas it has no ethical significance whatever. It is only a brand of the manufacturer. It is the possible secrecy of the copyrighted article, or the abuse of the method of copyrighting, that makes wrong. In reference to drugs, for example, the manufacturers may conceal the nature of the ingredients, and such things then become secrets; in this case we say it is unprofessional to use or to advertise them.—*The Philadelphia Journal.*

CARE OF CATHETERS.

CLEANSING CATHETERS.

After use wash at once by flushing with water, but do not allow them to soak in hot water. A syringe with a small point may be used to force the water through the tube of a Catheter and remove clots of blood or pus. If an antiseptic soluution is used in the flushing, the solution should be rinsed off at once. After cleaning they should be wiped and thoroughly dried. The drying process is best accomplished by first briskly shaking off the last drops of water from the interior of the Catheter, wiping and passing a pin or needle through the end (proximal) and hanging in a warm place In no case should they come in contact with fire, hot metal or be placed in an oven.

STERILIZING CATHETERS.

Elastic gum Catheters must not be boiled in an alkaline or in any antiseptic solution. They may be dipped in boiling water, which will destroy any infection upon their surface. They may be sterilized by flushing with an antiseptic solution, but the solution should be immediately washed away. The most effective method for the sterilization of Catheters is to thoroughly wash them and then immerse in a solution of formalin of from one to five per cent. strength.

Formalin solution can be purchased in the market containing about 40 per cent. of formalin, one ounce of this 40 per cent. solution added to fifteen ounces of water, will make a solution of about 2½ per cent. formalin, which strength has been found to be very effective.

They should be thoroughly immersed in the solution, or the solution forced through the tube by the use of a syringe. After disinfection the formalin solution must be washed away with water and the Catheter wiped and dried. When desired to sterilize Catheters just before using, flushing with the solution of formalin, followed by rinsing with water, will be found very effective. No elastic gum Catheter should be kept immersed in any antiseptic solution or liquid for any length of time.

For lubrication use pure olive oil or vaseline, wiping off immediately after use.

Inasmuch as the life of the Catheter depends upon proper care and usage and as considerable time is necessary for the drying process, it is often more convenient and economical to a patient who may be obliged to use an instrument several times a day, to be supplied with a number of them, so that the same instrument need be used only once in several days. This plan allows time for drying and cleansing and has many advantages. Catheters carefully cleansed and thoroughly dried will last much longer than if not *dried*.

BOILING LIGATURES BY THE MILLION

RED CROSS LIGATURES have become such a success that we have erected a battery of boilers for their sterilization.

The cause of their success is:

They are made absolutely aseptic. They are put up in double germ-proof envelopes. Each ligature is in a separate envelope. They are securely protected against infection in handling. RED CROSS LIGATURES can be safely carried in the pocket.

If the inner envelope remains unbroken they will always be found sterile and aseptic.

This label on dozen packets shows the method of preparing

A sample of Red Cross Ligatures will be sent any surgeon upon request

ABSOLUTELY STERILE

PREPARED UNDER THE FOLLOWING PROCESSES

1. Exterior cleansing.
2. Removal of moisture.
3. Sealing in prepared envelopes. The envelope allows the sterilizing liquids to pass through, but it is germ-proof, and effectually prevents after-infection by handling.
4. Successive sterilization with solvents (naphtha, ether, benzol, alcohol, etc.)
5. Sterilization by boiling in a solution of cumol compound at 320° to 340° F.
6. Removal of cumol solution.
7. Final sealing in aseptic outer envelope and packing.

CAUTION.—To prevent infection, disinfected hands or forceps should be used in opening inner envelopes.

STERILIZED, PACKED AND SEALED UNDER MY DIRECTION.

Elizabeth Wareham

Graduate Surgical Nurse.

Order Red Cross Ligatures, as they are imitated

Red Cross Ligatures have been adopted by the U. S. Army and Navy

Red Cross Catgut Ligatures, 30 in. lengths. Red Cross Silk Ligatures, 1 yd. lengths

JOHNSON & JOHNSON, New Brunswick, N. J.

LOW PRICE COTTON.

The following, from a letter recently sent an inquirer by Johnson & Johnson, tersely sums up from the inside of the cheap cotton situation.

"Much of the absorbent cotton now offered at low prices is the output of makers who have no knowledge or care as to its use as a wound dressing. This sort of material is generally made up of the waste and scraps of cotton mills, dust, leaves, dirt and sometimes loaded with fillers to make weight.

Johnson & Johnson's Absorbent Cotton is made solely for surgical uses. It is pure cotton fibre, freed from all impurities and chemicals. It is prepared in a laboratory where surgical cleanliness is the rule. Every fibre is handled by skilled persons working under aseptic methods.

Johnson & Johnson's Absorbent Cotton in the final processes of preparation is sterilized within the container.

Every package of Johnson & Johnson's Absorbent Cotton leaves the factory *absolutely sterile.*"

Yours truly,

JOHNSON & JOHNSON.
(*Per Lewis.*)

YEARS MAKE NO CHANGE.

EDWIN I. THORN, M. D., 611 S. Main Street,

SALT LAKE CITY, UTAH June 6, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I wish to state that I received from you a sample of Canthos Blister in March 189[illegible] which laid in my office until a few days since, when, in an emergency, I applied a portion of it to a patient requiring a blister. After so long a time it was perfectly pliable, retaining all appearances of a new plaster, which I applied in the usual manner, and in four hours was pleased to see a perfect blister under it.

I know of no other form of plaster which would retain all of its properties such a length of time. Very respectfully,

E. I. THORN.

THE "OTHER KIND" WAS BAD.

397 TEMPLE STREET,

NEW HAVEN, CONN., June 12, 1898.

Dear Sirs—Some two years since I received from your factory a sample of Canthos which proved very satisfactory. I have used since that time one other make, but with *very unsatisfactory* results, and I deem it only just to you to make this statement.

Very respectfully,

H. A. STREET.

A LAYMAN WHO WANTS ASEPSIS.

HENRY LANG COMPANY,
Manufacturers of Patent Leather.

NEWARK, N. J., May 24, 1898.

Messrs. Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—Permit me to thank you for the frequent receipt of printed matter pertaining to your product and forwarded at the instance of your Mr. Stevens. Whilst a layman, I am greatly interested in asepticism and its surgical results, and would consider it an additional favor if frequently kept in touch with such information as you deem practical to reveal. Very respectfully yours,

ALEXANDER S. BREINGAN.

WORTHY OF ALL PRAISE.

BOSTON, MASS., June 10, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I receive from time to time, as issued, a copy of RED CROSS NOTES, and I thank you for sending this literature to me. There are many interesting items given out to us.

Your surgical dressings are worthy of all praise. I use them as occasion arises.

Kindly address as follows and much oblige,

Yours respectfully,

W. A. HUBBARD, M. D.,
68 Myrtle Street,

PLEASED WITH PAPOID.

DETROIT, MICH., May 27, 1898.

Messrs. Johnson & Johnson, New Brunswick, N. J.:

Gents—I have been greatly pleased with the effects of your Papoid Tablets (Johnson's Digestive Tablets) in a case of gastric catarrh, and consequent impaired digestion. I shall pursue my investigations further in the use of Papoid in gastric troubles.

Please send to my address monograph giving sizes, &c., of Kingstone Catheters, &c., and oblige,

Yours respectfully,

W. R. MILLER, M. D.,
583 Third Avenue

THAT FEELING OF SAFETY.

DR. WM. L. DICKINSON,
Office and Residence, 917 Genesee Ave.,

SAGINAW, MICH., June 8, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Messrs.—Allow me to thank you for RED CROSS NOTES. I was very much interested in the article on "Cutting Out a Stomach."

I am doing Rectal Surgery and would be pleased to try your Red Cross Aseptic Ligatures. I have used your Gauzes and Cotton for several years, and always feel perfectly safe in their use. I am,

Yours respectfully,

WM. L. DICKINSON.

THE SPANISH BOMBARD SCOTT'S EMULSION.

A Madrid journal contains the following blast against a well-known medicine:—"Viva España. War against Scott's Emulsion. The first duty of every good Spanish patriot is to despise the products of New York, and as Scott's Emulsion is made in that odious capital, we ought to despise it. Espinar's Emulsion is genuinely Spanish, more efficacious, cheaper and, recommended by the principal physicians in Spain, is the article to buy."

HOW TO EXAMINE ABSORBENT COTTON.

One article often called for and now so extensively used by all physicians is getting to be so much adulterated and cheapened, that I desire to call the attention of druggists and physicians to absorbent cotton.

With good long staple cotton at the low price it now is, there is no excuse for the manufacturers using such low grade of "stuff" as they now do. Absorbent cotton should not be made from raw cotton with a staple of less than one-half inch in length, and it certainly should be made absorbent before putting it on the market. Taking three brands of absorbent cotton made by different firms as an experiment, I was suprised at the different grades of cotton used and the absorbing properties of each. When first removed from the paper carton, the cotton, to all outward appearances, was good; but, like a bad pie, the filling was bad. In one grade of the cotton about two-thirds of the ounce was nothing but linters from the oil mills, and a quilting factory would hardly use this grade as basting, as there is really no length to the fibre.

In making absorbent cotton from stuff like this it takes long boiling with alkalies to get shed of the grease, and, as it contains fine particles of hulls, when bleached they remain in the cotton in small yellow specks. When using such cotton as this on wounds or sores it would nearly be impossible to remove the short fibre, and when left as a foreign body they certainly would irritate, instead of being antiseptic, as originally intended, and doubtless the healing of wounds has often been delayed by this short fibre remaining on them. One of the samples could hardly be called absorbent, as it required some time to absorb enough water to cause it to sink in a glass of water.

With cotton at the low price, and the price as charged by the manufacturers, it is nothing but fair to our physician friends that the druggists examine carefully all the absorbent cotton purchased by them and reject all that the length of fibre is not equal to or over one-half inch. To test the cotton, take a piece of it between the thumb and forefinger of each hand and pull it apart, put together again and repeat the pulling until the fibres stand separate like hairs, then measure on a rule the length of fibre.—*R. B. King, in Meyer Brothers' Druggist.*

WORTHY OF HIGHEST PRAISE.

HEADQUARTERS THIRD REGIMENT, N. J. VOLS.,
POMPTON LAKES, N. J., May 28, 1898.

Messrs. Johnson & Johnson:

Yours of May 24th received. Of course you understand that it will be a pleasure now or at any time to be of assistance to you, because your goods as I know are worthy of the highest praise.

I will be very glad to inspect any of your goods, and if at any time my name will be of any use to you, I shall only be too glad to give it. Very respectfully,

C. M. SLACK,
Major and Surgeon 3d Regt. N. J. V.,
Pompton Lakes, N. J.

IN LOVE WITH PAPOID.

OHIO PENITENTIARY,
COLUMBUS, O., May 21, 1898.

Johnson & Johnson, New Brunswick, N. J.

Gentlemen—In a recent circular on Johnson's Digestive Tablets and the action of Papoid I notice a short article on "Tattooing, Removal by Papoid," by Dumesnil.

I will be greatly obliged if you will send me something further on this subject or give me the address of this writer "Dumesnil."

I am using Papoid in practice and have fallen very much in love with it.

Very truly yours,
G. A. THARP, M. D.

. . JOHNSON'S . .

Absorbent Cotton

Is made in what is known as the "cleanest factory in the world." In this place surgically clean wound dressings are prepared.

Johnson's Absorbent Cotton not only looks clean, but it is so pure that it is called aseptic—this means that it is surgically clean—that

It is free from irritating chemicals.
It is free from poisonous dirt.
It is free from disease-breeding germs.
It is free from all foreign matter.
It is absolutely pure absorbent cotton—nothing else.

Johnson's Absorbent Cotton is the only kind fit for dressing wounds, for filtering, chemical and domestic uses. It costs no more than the common kind.

Johnson's Absorbent Cotton has a *Red Cross on the Label.*

AN ANCIENT FIGURE

The figure herewith given under the title "Mandragora Morion" is believed to be the first authentic delineation ever made of the Belladonna Plant.

The title of the work from which this drawing is taken, is as follows:

"*Leonharti Fuchii Medici*, Primi de Stirpium historia commentariorum tomi vivæ imagines, in exiguam angustiorcurguo formam contractae. Basileæ 1549. Palma Ising."

The title of another work by Fuchs, in which the samo illustration appears (only smaller and reversed) and the plant is named *Solanum Somniferum*, is as follows:

"De Historia Stirpium Commetarii insignes.

"Adiectis earundem vivis, et al natural imitationem artificiose expressis imaginibus, Leonharto Fuchsio medico, hac nostra actate clarissimo, autore. Lugduni, apud Balthazarem Arnolletum, 1551."

From these two works the modern student of the pharmacognosy of Belladonna finds a starting point.

For the transcript of this unique and historic figure, RED CROSS NOTES is indebted to The Lloyd Library of Cincinnati Ohio.

The original was drawn by one of the fathers of scientific botany, Leonard Fuchs or Fuchsius. (1501-1556.) The publications of Fuchs are noted for the transcendant merit of their wood cuts.

Mandragora morion.

Doll Krauter.

(From Orignal Drawing, 1549.)

Johnson's Belladonna Plasters are made under present day scientific methods, every step of their manufacture is carefully and well manufactured and they are made to give the exact and true effects of Belladonna.

Johnson's Belladonna Plasters have steadily increased in popularity from the day of their inception until now their sale is general in every city, town and hamlet. Nothing but the genuine merit of superior quality could have effected this.

YOU HAVE THE ART

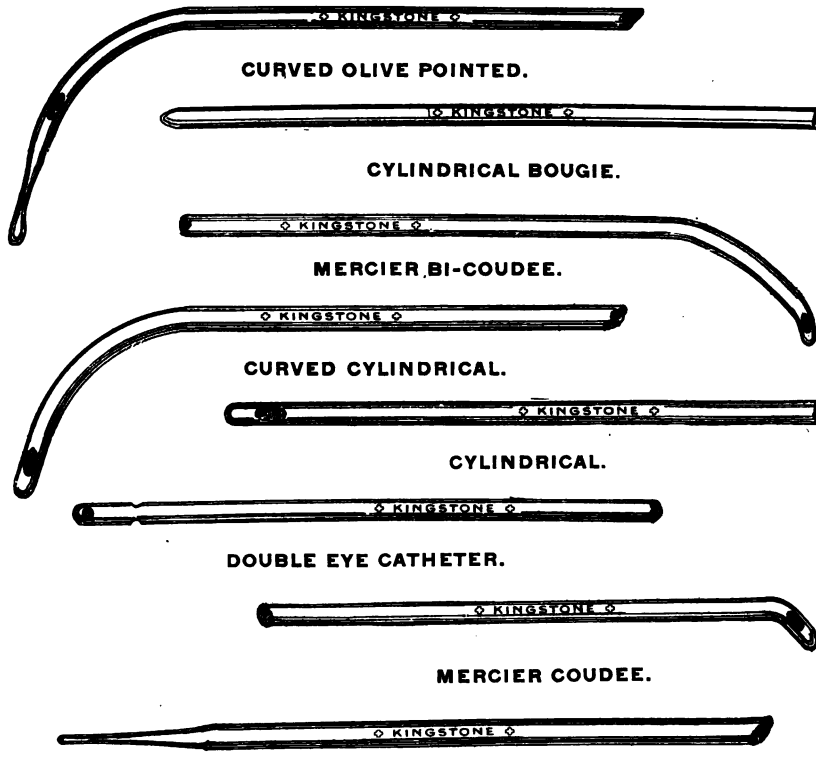
The last Kingstone Catheters I purchased are fine; no better can be made. I have bought instruments of the Original Benas. The Kingstone instruments equal the best ever made. You certainly have the art.

C. H. VOORHEES, M. D.

THE REASON

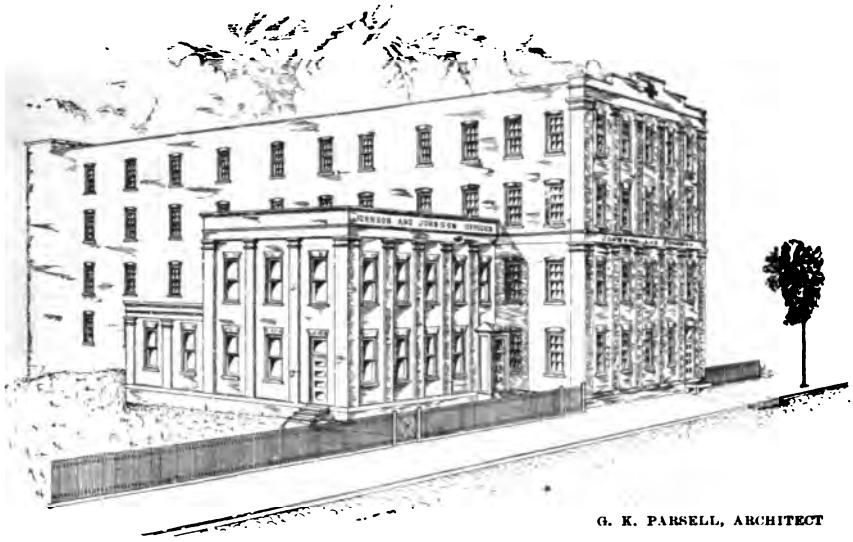
of the perfection of Kingstone products, is that they are the result of two generations of skilled labor, applied to the production of perfect instruments. Every eye is woven, strengthened and stayed. The coatings are carefully prepared, durably finished, velvet smooth. Kingstone Instruments are made in all styles and shapes.

A FEW USEFUL PATTERNS:



Send for "Notes on Catheters and Bougies"

Johnson & Johnson, New Brunswick, N. J.



G. K. PARSELL, ARCHITECT

LATEST ADDITION TO JOHNSON & JOHNSON'S LABORATORIES.

The illustration herewith shows an addition to the plant of Johnson & Johnson now in the course of construction, When completed the main building will be four stories high 50 x 200 feet, with an office L 50 x 40 feet giving a total floor space of about 45,000 feet.

The main building will be used for the shipping department and storage of finished products.

One of the floors will be used as a department for wrapping and sterilizing absorbent cotton.

The building will be connected with the main factory by two suspension bridges crossing the raceway. The buildings will be fitted with hydraulic elevators, and lighted by electricity. In many respects this is the best of all the laboratory buildings.

CONFIDENCE NEVER MISPLACED.

LOCKPORT, N. Y., May 27, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I should like samples and prices of Army Dressings. It strikes me that portable dressings occupying the least possible space and put up in sufficiently small packages to be used up at one dressing, would secure asepsis and be a desideratum. I use all your preparations in the surgical line with confidence, and have, I am happy to say, thus far not found it misplaced. My experience with them extends to your infancy in the business, hence I am pretty well prepared to judge. Yours still,

C. N. PALMER.

P. S.—Please keep me advised whenever you strike a new lead.

EXCELLENCE APPRECIATED.

HEADQUARTERS SECOND REGIMENT, N. G. N. J.
CAMP VOORHEES, SEA GIRT, May 26, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Yours of the 24th inst. received. In reply to your offer, I shall be much pleased to receive samples of the goods checked on the enclosed list, and samples of any other military surgical supplies which you are manufacturing. I am just equipping my regiment in anticipation of orders to move, and any information in this direction will be of much value at present. I appreciate the excellence of your goods, not only from my constant use of some of them at home, but also from having inspected your plant at New Brunswick two years ago. Yours very truly,

MAJOR F. ADAMS,
Reg. Surgeon, 2d Regt., N. J. V.,
Sea Girt, N. J.

THE BEST COTTON GROWN

M. L. EURE, Norfolk, Va. GEO. F. JONES, New York. W. F. GREGORY, Norfolk, Va. GEO. M. SHUTT, New York.

OFFICE OF

Isaac, Sons & Co. 126 Pearl St. New York.

EURE, GREGORY & CO., P. O. BOX 25.

31 Plume Street.

NORFOLK, VA. May 7th 1898

Mess Johnson & Johnson
New Brunswick NJ

Dear Sirs:

Your favor of 6th to hand and contents noted. The cotton we have shipped you during the present cotton season was grown in North & South Carolina, and was selected for you by us with great care. Out of Twelve hundred bales shipped you from October 1st 1897 to May 1st 1898. Or Six hundred thousand pounds. (600,000 lb) We do not believe there was a bale below "Good Middling" in grade, being free from leaf and very white. We consider the character of the cotton second to none grown in the southern states. And we say without fear of contradiction it was the best cotton handled in this market. We are

Yours Very Truly
Eure, Gregory & Co

This letter shows that the staple of Johnson's Absorbent Cotton is the best that the "Sunny South" can produce.

When it leaves our laboratory it is perfect in Absorbency Absolutely Aseptic.

Johnson's Absorbent Cotton costs no more than the other kind

F.B.

Red Cross Notes

BOSTON MEDICAL
NOV 4 1898
LIBRARY.

SERIES TWO . . .
NUMBER THREE

INTERESTING ITEMS

	Page
Sure Enough U. S. P.	1
Difficulties in the Assay of Belladonna Plasters	10
A Peep Into Space	14
A Startling Suggestion	16
$500 for a Plaster Test	24
Spanish Bullets	8
Bernays' Sponge in the Nose	9
War Echoes	18
Must Be Stamped	23

To receive every issue of these Notes, send your name with a request to that effect. At present they are sent without cost to the recipient.

JOHNSON & JOHNSON
Aseptic Laboratories
NEW BRUNSWICK, N. J.

LINTINE

Better and Cheaper than Lint or Absorbent Cotton.

Lintine is Easily Cut into Bandages of any Size or Shape.

Lintine can be cut with a knife or shears, or torn into bandages.

Lintine cuts or tears without waste; forms neat and handy bandages.

Dressings made of Lintine. Lintine has a thousand more uses than Cotton or Lint.

LINTINE—THE CHEAPEST AND BEST WOUND DRESSING MATERIAL KNOWN.

FOR A SAMPLE OF LINTINE WRITE

JOHNSON & JOHNSON. New Brunswick, N. J.

RED CROSS NOTES

COPYRIGHTED 1898.

SERIES II, No. 3. NEW BRUNSWICK, N. J. 1898.

SURE ENOUGH U. S. P.

A Symposium on Belladonna Plasters

In a report published in the *American Journal of Pharmacy*, April, 1898, the Research Committee D. Sec. II, of the Committee of Revision of the U. S. Pharmacopea, gives a method for assay of Belladonna plasters, and incidentally attempts to establish a standard strength for the same. In this attempt to establish a standard for Belladonna plasters, it seems that they have made an error as to the pharmacopeal requirements. The following is the text of the Pharmacopea:

EMPLASTRUM BELLADONNÆ

BELLADONNA PLASTER

Alcoholic Extract of Belladonna, *two hundred grammes*	**200 Gm.**
Resin Plaster, *four hundred grammes*	**400 Gm.**
Soap Plaster, *four hundred grammes*	**400 Gm.**
To make *one thousand grammes*	**1000 Gm.**

Melt the Plasters on a water-bath; then add the Extract of Belladonna, and continue the heat, stirring constantly, until a homogeneous mass results.

By this formula it will be seen that the Pharmacopea requires that the plaster mass shall contain twenty per cent. of Belladonna Extract. In making up a typical plaster for assay purposes, the Research Committee fell into the error of making a plaster containing 33⅓ per cent. of extract. They say: "Extract of Belladonna leaf was assayed by the shaking-out process, 1.19 and 1.15 per cent. of the alkaloid being obtained in the duplicate estimations. The extract was then mixed with *twice* its weight of a rubber combination, such as is used in the manufacture of Belladonna plasters. The mixture was then assayed and yielded 0.393 and 0.377 per cent. of alkaloid."

They should have mixed the extract of Belladonna leaf with *four* times its weight of plaster mass to make a plaster of pharmacopeal strength. The assay would then have shown somewhere from .230 to .238 per cent. alkaloid. By this error the standard plaster of the Research Committee was placed nearly 70 per cent. too high. In other words, a Belladonna plaster, if made strictly according to the Pharmacopea, from the sample of extract in the committee's hands, would, upon assay, have fallen below their own standard. In establishing a standard for any pharmaceutical preparation it becomes of serious moment if the standard is set too high; if the maker is a retail pharmacist or a small manufacturer, he cannot control his supply of crude material, his resources are such as may be offered in the market by reputable dealers. If the pharmacopeal standard is higher than the market affords, his product, although made from the best drugs procurable and strictly in accordance with the processes of the Pharmacopea, would be condemned. A standard set too high is of moment to the physician, especially for preparations containing highly active constituents. The physician looks for results corresponding in some measure with the total amount of constituents normally present in the drug. If the constituents are of a poisonous nature, serious results may follow where the strength is above that

which should be looked for in ordinary experience.

In order to correct the obvious errors of the Research Committee in their attempt to establish a standard for Belladonna plasters, and in order to determine what would be the strength of a Belladonna plaster made strictly in the proportion of the Pharmacopea from extracts purchased in the open market and bearing the names of reputable makers, the experiments herein outlined were undertaken. Accordingly five jars of alcoholic extract of Belladonna were procured from five different makers. In order to eliminate any question of self-interest, Mr. H. P. Reynolds, a pharmacist of well-known reputation and without bias, either as to the making of extract or of plasters, was delegated to weigh the ingredients, compound the masses and take samples for assay, etc. Samples of the extract of the finished plasters, made under these conditions, were forwarded to Prof. Charles Caspari. The reports are herewith appended.

Belladonna Extracts and Belladonna Plasters

BY HOWARD PRESCOTT REYNOLDS

Plainfield, N. J.

At the request of Messrs. Johnson & Johnson, and upon their premises at New Brunswick, N. J., on May 31st and June 1st, 1898, the writer made examination as to physical properties and characteristics of five specimens of extract Belladonna, the products of as many different manufacturers, and afterward witnessed and took part in the entire series of operations—admixture and spreading—ending in the completion of the Belladonna Plaster ready for application.

A record is here presented in detail covering the preliminary examination of the several specimens of extract used, and the subsequent mechanical processes of manufacture, together with the methods of observation employed.

Five parcels of Belladonna Extract in their original containers were placed before the writer, each labelled and sealed in the usual form for the market, each also bearing the label of the market, indicating the contents and the weight. (in most cases one pound, in one case five hundred grammes), together with smaller labels or shop-marks.

Before opening, each container was marked with a private character, the same character being used to connect the several steps of the process of manufacture, and used also in framing the writer's notes, with the intent—in part—to guard against any partiality—conscious or unconscious—on the part of those engaged in manipulating the products, which might by any possibility affect the final results.

Every strip of muslin when stretched upon the spreading machine and ready to pass between the rollers was inscribed with the character representing the package of extract used in forming the mass. To avoid confusion, the manipulating of each portion of extract and of completed plaster was separately conducted and completed.

Similarly, at every stage of the entire work, care was taken to avoid error or confusion, and to make and preserve a clear and unbiased record of the proceedings.

The methods used with regard to every portion of drug and of prepared base, from first to last alike, may be generalized and grouped together as follows:

All the containers having been marked, were opened one by one, and observations were made as to the character and condition of the contents, as to consistency, color, odor, etc., and these were duly recorded. A portion of the extract amounting to six ounces, avoirdupois, was carefully weighed out and laid upon a marked receptacle. Similarly a portion of neutral (or unmedicated) plaster mass, weighing twenty-four ounces avoirdupois, was then weighed out and placed upon the same receptacle, the entire mass having a

weight of thirty ounces, in the proportion of one to four, that is of twenty per cent. of extract to eighty per cent. of base.

The mass was placed directly upon the rollers close at hand, and thoroughly mixed by rolling back and forth in the customary way for mixing plaster mass. It was then transferred to the spreading machine, where the muslin back, already marked as above noted, awaited it; the rollers were set in motion and the spreading quickly completed over a surface of rather more than one square yard. Before removing the spread plaster from this machine, a strip seven inches in width was cut across the plaster and placed in the keeping of the writer. The remainder was laid aside to be used in the further procedures of examination, comparison and analysis.

Having thus sketched the mechanical process of manufacture used alike in all, it remains to record the methods and results of the physical examination applied to each specimen of extract of Belladonna.

SAMPLE A.

The product of Messrs. E. R. Squibb & Sons, Brooklyn, N. Y. The container of amber glass (cover included), and bears on its front a "poison label" in red ink, inscribed:

E. R. SQUIBB & SONS
EXTRACTUM BELLADONNA
500 grammes

The consistency of this extract (at 70°-75° F.) is that of a rather soft pill-mass in condition to roll and form a uniform mixture for spreading, free from the rubber-like quality which interferes with such work—a matter of importance to manufacturing pharmacists, which was well illustrated in the behavior of the different specimens under the rollers.

In bulk, the color of this specimen is of very deep brown. When smeared with pressure on white paper (uncalendered), it leaves a brown stain graded from dark to light, with a slight tinge of green.

The odor is that commonly characterized as "narcotic," and markedly such.

As to the physical characteristics throughout they are apparently such as to meet in effect the requirements of the United States Pharmacopea, and of the experienced pharmacist.

SAMPLE B.

The product of Messrs. Lloyd Bros. of Cincinnati, Ohio. A white earthen-ware container, with plain tin cap, labelled:

EXTRACT OF BELLADONNA, 1 lb.
LLOYD BROS.
CINCINNATI

The label is inscribed with pen and ink: "1.86 alk. volum. assays 2.05—2.02 gravim. assay."

The consistency of this specimen is notably soft, the mass being slowly mobile as the jar is tilted from side to side, and capable of being poured, though sluggishly, at the temperature of the work-room (70°-75° F.) This extract is miscible with the plaster mass under the rollers without difficulty.

The color of this specimen in bulk is brown, of a lighter shade than that of the other specimens, an undertone of green being perceptible in the smear made upon a white paper, although not observable in the mass.

The narcotic odor is more pronounced than that of sample A, although not offensively strong.

SAMPLE C.

The product of Messrs. Sharp & Dohme, of Baltimore, Md. Container of amber glass, with a lacquered tin cap, and labelled:

EXTRACT OF BELLADONNA, 1 lb.
(From Belladonna Leaves
S. 1525.)

The consistency of this specimen is that of a very soft pill-mass. It is slowly mobile in the jar.

The color in bulk is a dark brown; but when smeared on a white surface the extract appears of a brown color modified by an undertone of green, and of a shade between that of sample A and sample B.

The odor of this extract is strongly narcotic, being perhaps, second on the list in this regard.

SAMPLE D.

The product of Messrs. Parke, Davis & Co., of Detroit, Mich. Container of amber glass, with cap of lacquered tin. The label, of red on white, inscribed:

No. 9
EXTRACT BELLADONNA LEAVES

"Assayed: Dose ⅛ to ½ gr. (9.998—9.93) strength 1.75, titrated by vol. acid sol., one grain equal five grains standard Belladonna leaves, 53.186."

The label also bears statement of the medicinal properties and of the antidotal treatment required in case of poisoning by Belladonna.

The consistency of this extract is soft enough to permit of its being poured from the container in a slow, heavy stream.

The color, in mass, is greenish brown, but when the extract is smeared on a white surface, it is plainly seen to be of a decided green.

The difference in color of these extracts is said to be due to the variation of processes of extraction, although it is said to be the practice of certain manufacturers to add a portion of chlorphyl in order to give the appearance of the green color of the leaf.

The odor of this sample is strongly narcotic, even offensively so, on first removing the cover from the jar after it has been for a time closed.

SAMPLE E.

The product of Messrs. George Allen & Co., of London, England. Container and cover are of white earthen-ware.

The consistency of this extract is that of a rather firm pill-mass in good condition for rolling when the jar is opened, and with a tendency to harden on exposure, unless in an unusually damp atmosphere.

The color in bulk is a positive brown, and such is the case, too, with the smear made with this extract upon a white surface. It is a true brown, toned with red, and free from any hint of the green frequently noted in vegetable extracts.

The odor of Sample E is mildly narcotic.

With no purpose to extol one specimen above another, but as a statement of definite fact, it may be said that sample E conforms as to physical appearance and properties with the requirements of both practical and classical pharmacy.

REMARKS.

Making due allowance for the inherent difficulties of producing solid extracts of uniform character, such as the variableness of crude material, the widely differing demands of manufacturers, the lack of exact standards as to density, etc., we are led to the conclusion, on reviewing the foregoing observations, that this group of extracts is creditable to the pharmacy of our day. In spite of their differences, all give evidence of a purpose to comply with authorized standards, to present products of real medicinal value and of commercial excellence.

It is encouraging to know that the pharmacist, whether manufacturer or retailer, may select from a fairly wide field for his particular purpose, materials of known good character; not less encouraging to realize that prominent manufacturers are demanding such materials and will take no others in face of the keenest competition.

Furthermore, with regard to the finished products which owe their value to the extracts we have been studying—to wit, Belladonna Plasters, and with regard to the processes used in preparing them, it is clear that it is the purpose of manufacturers to comply with the same author-

ity which governs the retailer. And it is the testimony of the writer that this aim was apparent throughout, in the case of the particular products and processes herein noted. And this record is presented after witnessing and assisting the production by modern methods conducted on the largest scale of the pharmacopeal *Emplastrum Belladonna.*

With an experience reaching back to the period when plasters were all extemporaneously prepared at the prescription counter, by aid of spatula, iron roller, capsule, and spirit-lamp, of card board pattern and kid-skin, the writer cannot hesitate to testify that, whether as to process or product, methods or materials, the new is better than the old.

HOWARD PRESCOTT REYNOLDS.

North Plainfield, N. J., June, 1898.

Assay of Belladonna Extract and Plasters.

BY CHARLES CASPARI, Ph. G.,

Professor of Pharmacy, Maryland College of Pharmacy, Secretary of the American Pharmaceutical Association.

Report of Alkaloid found in Extract of Belladonna and Plaster, said to be made from same.

	Plaster	*Extract.*
Sample B—Lloyd Bros....	.301..	1.835
Sample C—Sharp & Dohme	240..	(1.30°)
Sample E—Allen's.....	.160..	.908
Sample A—E. R. Squibb & Sons.....	.173 .	.870
Sample D—Parke, Davis & Co..... ...	.290..	1.72
Mean of five samples,	.0.232..	1.326

Yield of Alkaloid by Pharmacopeal Process

BY A. R. L. DOHME, Ph. D., (Strassburg), of Sharp & Dohme, Baltimore.

The United States Pharmacopea makes no requirements as to the strength of Belladonna, Belladonna not being one of the drugs that has been standardized by the United States Pharmacopea, although it should be, and no doubt will in the next edition.

In reply to your question as to whether a plaster made exactly in accordance with the Pharmacopea of the extract of Belladonna leaves made by Sharp & Dohme, or any other reliable manufacturer, would assay 0.5 per cent. alkaloids. I would say "no," and for the following reasons:

Belladonna leaves yield about 25 per cent. of extract, and although assaying from 0.25 per cent. to 0.50 per cent. alkaloids, the standardized extract referred to above would contain 1.40 per cent. alkaloids because it is made from a fluid extract that is standardized to the strength of 0.35 per cent. alkaloids.

Hence, a plaster made from this extract according to the United States Pharmacopea, that is, one of extract to four of plaster base, would yield a plaster that would assay 0.28 per cent. alkaloids.

In the absence of a definite United States Pharmacopea Standard for Belladonna Root or leaves, and assuming the standard adopted by our firm and other firms of 0.45 per cent. alkaloids for Belladonna Root, a plaster made according to the United States Pharmacopea of standardized Belladonna Root extract should assay 0.40 per cent. alkaloids.

Three-Tenths Per Cent. the Proper Standard.

BY CHAS. RICE, Ph. D.,

Chairman Committee of Revision of the U. S. Pharmacopea, Chemist to the Department of Charities, New York City.

"I believe that the standard which I have set for alkaloids in Belladonna plasters is a fairly proper one—0.3 per cent. and am strongly inclined to advocate it for adoption in the United States Pharmacopea."

Conclusions to be Drawn.

From the foregoing it is evident that the alcoholic extract of Belladonna as supplied by five of the most reliable makers, whose products are procurable in this market, show a mean content of 1.326 per cent. alkaloids.

That when Belladonna Plasters are made in the proportions required by the Pharmacopea, from extracts of Belladonna leaves produced by five of the

most reliable makers, they will show a mean content of 0.232 per cent. alkaloid in the plaster mass.

That when Belladonna Plasters are made from the extracts of Belladonna Root strictly in the proportions of the Pharmacopea, they will assay from .25 to .40 per cent. alkaloid.

That those manufacturers whose plasters fall much below these figures are using either inferior extracts of Belladonna, or less amounts than required by the Pharmacopea.

That products of manufacturers who claim an assay much in excess of these figures, are either using an excessive and perhaps dangerous amount of the drug, or else, as hinted by some authorities, they are stuffing their product with alkaloid for show. A most reprehensible and dangerous practice.

What Johnson & Johnson Say

Upon placing the foregoing before Mr. R. W. Johnson, President of Johnson & Johnson, for his opinion of the matter he said:

"Johnson & Johnson make their plasters of Belladonna, without any adding or detracting from its natural constituents, to make a show for assay purposes. They try to make a plaster that will give the exact and full effects of Belladonna. They try to make a plaster that will show uniformity in therapeutic results or in assay."

Taking down a file of documents which proved to be assays of Belladonna Plasters he handed out one stating, "here is an assay of Belladonna Plasters by Drs. Davenport and Battershall, made in 1886. This shows an alkaloidal strength of 0.387 per cent. Here is one dated March, 1898, where Johnson's Belladonna Plasters show an alkaloid strength of 0.384 per cent. alkaloid."

This seems to show that Johnson & Johnson's Belladonna Plasters are fully up to the Pharmacopeal requirements as to alkaloidal strength, and these assays, covering twelve years, exhibit a great uniformity in strength.

THE WOUNDED AT SANTIAGO.

The wounded in this battle received prompt first aid treatment, often under fire, by their regimental medical officers, and, on the same day, were carried back to Siboney on litters by relays of troopers, and during the night the greater number of them were transferred from the extemporized receiving hospital on the beach to the transports designated to receive them. This proved to be a labor of difficulty, as, there being no wharf, all landings had to be effected by beaching the ship's cutters employed in embarkation. As in this action the enemy did not use artillery, the wounds of our men were all inflicted by the jacketed bullet of the Mauser rifle, a missile of .26 caliber, which caused small, clean-cut injuries without laceration or crushing of bone. Three days after the application of the Esmarch dressing to the slighter injuries, I am informed that the greater number of them maintained an aseptic condition. As regimental surgeons had taken the field without their medical and surgical chests, no major operations could be done in the lines. After the transfer to the transport, where all facilities had been provided, this work was promptly begun, and permanent dressings applied. The number of the wounded requiring surgical aid footed up about one hundred. Litters for removing the wounded from the field in the absence of the regulation stretcher were built from saplings bound with strips of canvas over which shelter-tents and blankets had been stretched effectively. A man with a perforation of the liver and kidney thus transported reached the hospital-ship without further injury, a journey of five miles or thereabout. The prompt aid rendered the wounded on this occasion, and in general, their immediate removal from the battle-ground, doubtless prevented many fatalities. Of sixteen men sent down from the regular brigade on litters, including the one referred to above, all had survived at the date of their departure from the harbor for a Northern port.—*Medical News.*

FIRST AID TO WHEELMEN

Suggested no doubt by the demonstrated utility of the First Aid Packets in warfare, we have the Red Cross First Aid to Wheelmen. This is a compact package about three inches long, two inches wide, one inch in depth, and weighing two ounces. It is intended to be carried in the wheelmen's tool pouch.

The contents of this packet are adapted to dressing the small wounds and bruises commonly happening in cycling. The contents can also be utilized in more serious injuries either to the rider or wheel.

Novices on the wheel will certainly appreciate having at hand the plasters and bandages contained in this little packet.

The circular accompanying the packet is given herewith and in brief explains its contents and usefulness.

RED CROSS FIRST AID TO WHEELMEN

CONTENTS OF PACKAGE

One three-yard strip of adhesive plaster, six pieces of court plaster, two safety pins, one dozen bank pins, one antiseptic compress of corrosive sublimate gauze in oiled paper, one cotton bandage, three yards.

This packet contains sufficient material to care for small wounds, bruises and hurts of any nature. Serious accidents, such as fractures, sprains, etc., may be cared for until the surgeon takes charge. The adhesive plaster and court plaster is intended for covering small wounds, and may be applied after cleansing the part affected. Open wounds, bleeding, etc., should first be washed and the antiseptic compress placed on the wounds, first removing the oiled paper. In cases of large wounds, cover the whole wound with the compress, afterwards cover with the cotton bandage.

In addition to the uses suggested for the treatment of wounds, the court plaster and the adhesive plaster in this package will be found very useful in repairing punctured tires; it is self-adhesive, and when wound around the tire will make a waterproof and air-tight joint.

JOHNSON & JOHNSON, Makers,
New Brunswick, N. J.

THE DANGER FROM CUBAN CEMETERIES.

It seems that those who die in Cuba are destined to secure the peace and quiet of sepulture only so long as they have paid for the niche in which they are destined to be deposited. "Rest in peace" depends upon the affection and willingness of the dead person's friends to pay another's rent in advance. When the year expires, unless the yearly rental is forthcoming, the coffin is unceremoniously taken out and dumped on a convenient field without the sacred compo. The walls of these niches become masses of germ-laden masonry alternately warmed by the tropical sunshine, and kept moist by tropical dews. In other words, they are most favorable culture-beds, and containing as they do the foul germs of yellow fever, become when disturbed sources of widespread infection. The disinterring of the dead is not allowed in Jamaica. Four years ago, in one of the West-Indian islands belonging to Great Britain, part of an old cemetery was dug up which contained the graves of many yellow fever victims. Yellow fever had been absent from that island for years, but immediately after this it appeared and made many victims.

FINEST EFFECTS.

TOLEDO, OHIO, May 17, 1898.

Johnson & Johnson, New Brunswick:

Gentlemen—Please send me your RED CROSS NOTES whenever issued. Have used your Linton Moist Gauze and Sterilized Gauze and get the finest kind of effects. Bought the imitation a couple of times by mistake but can get the genuine now from my druggist who carries a full line of your goods.

Respectfully yours,
C. H. BELLAMY, M. D., M. C.
P. O. Box 92, West Toledo, Ohio.

No. 11 of Red Cross Notes, published by Johnson & Johnson, New Brunswick, N. J., contains a very interesting account of "The First Operation of Excision of the Stomach in America." It is illustrated by two or three diagrams. There are several other articles of general interest, as well as considerable matter about several of the preparations made by the publishers.—*Spatula, Boston.*

CONSTITUENTS OF BELLADONNA.

$C_{17}H_{23}No_3$	Atropine.
$C_{17}H_{23}No_3$	Hyoscyamine.
$C_{17}H_{21}No_2$	Belladonnine (Hubschmann)
$C_{17}H_{21}No_2$	Atropamine (O. Hesse)
	Apoatropine (Pesci) (probably identical with Atropamine).
	Starch both free and combined with potassium salts.
	Malic acid.
$C_{12}H_2O_5$	Chryastrop acid (Kunz).
$C_{17}H_{32}O_5$	Leaxtropic acid (Kunz)
	Succinic acid (Kunz).
	Acetic acid (Brandt).
	Prendatorin (Brandt) with oxalate and sulphate of calcium.
	Phyteumscolla.
	Gum, wax, mucilage, asparagin, albumin.
	Atrosin coloring principle of root.
	Chlorophyll coloring principle of leaves.
	Potassium sulphate, Nitrate, Phosphate, Chloride, Hydrochlorate, Oxalate and Malate.
	Magnesium Malate and Phosphate.
	Calcium Malate and Oxalate.
	Sodium Phosphate.
	Ammonium salts.

We see by this that Belladonna contains many other things besides atropine, and it is no doubt true that quite a number of its constituents possess physiological activity. Prof. Lloyd says that "neither atropine or hyoscyamine in proportion to correspond to these obtained from the alcoholic extract or tincture of belladonna seems to possess the full qualities of the alcoholic extract or a percolate of good belladonna. Hence admixtures of extractives with the purified alkaloid cannot fully replace natural belladonna extractives that are of the same alkaloidal proportion." From this we may infer that a maker of belladonna extract might add atropine in order to give it an apparently high assay value, but this assay value would not be any indication of its usefulness.

Only one manufacturer of Belladonna Plasters (Johnson & Johnson) claims that their product contains all the constituents of Belladonna in an absorbable form.

SPANISH BULLETS

The terrific execution done by the Spanish bullets among our troops in Cuba, and which at first led to a severe arraignment of the Spaniards on the supposition that they had mutilated the dead, is explained by the fact that they used rifles of small caliber, but affording great initial velocity to the projectile.

The missiles from these weapons work their worst havoc at the point of exit. The wound of entrance, wherever it may be, regardless of the varying density of the different tissues of the body, is usually no larger than the size of the bullet, while the orifice of exit is large and jagged.

A typical illustration is presented in the description of the wound in the head of one of the American soldiers. The ball entered the frontal bone anterior to the right parietal suture, and above the temporal articulation, traversed the brain longitudinally, and, passed out through the right occipital bone midway between the mastoid process and the occipital protuberance. The wound of entrance, as far as the inner table of the skull was involved, was clean cut and the size of the bullet, although from the outer table a piece was chipped off at the lower margin of the orifice. The wound of exit was irregular in shape, and measured about one inch in diameter, damaging alike the inner and outer tables of the skull. There was a complete longitudinal fracture through the frontal bone. In this case, as in several similar ones, the fracture did not communicate with the wound of entrance or that of exit. These fractures are supposed to have been due to the great velocity of the missile through the brain substance by which sufficient time was not allowed for cell compression, resulting in the bursting of the skull, so to speak. This effect is intensified by a deforming bullet or by an expanding bullet, as it widens the area of compression. An exploding bullet, would be still more destructive, but there is no evidence that such a missile is being used by the Spanish forces.

An investigation of some samples of Mauser cartridges used by the Spanish troops showed the bullets to be enclosed in brass casings, which, as is well known, can hardly fail to cause blood-poisoning in a person wounded by them, no matter how slight the injury.

ANTISEPTIC DRESSINGS.

We have received from Messrs. Johnson & Johnson a treatise on this important auxiliary to surgery.

This firm has been manufacturing antiseptic dressing materials for ten years, having entered in this business when the field was unoccupied. In ten years, by making a practical application of scientific principles and carefully observing experiments, they have developed dressing materials of incalcuable value to surgeons and the firm has attained its desire of manufacturing such articles as would meet the requirements of the art of surgery.—*Dietetic and Hygiene Gazette.*

BERNAYS' SPONGE IN THE NOSE AND NASOPHARYNX

At a recent meeting of the American Laryngological Association, Dr. W. K. Simpson, of New York, demonstrated the use of the Bernays sponge, which, he said, consisted of cotton fibre subjected to many hundred pounds of pressure and compressed to a disc one-twelfth of an inch in thickness. The sponge would swell to fifteen times its size and absorb twelve times its weight of liquids. Its efficacy in general surgery depended upon the absorbing power, which enabled it to be used as a cleansing agent and subsequently to pack the wound. Through this power of absorption and increase in size it exerted pressure, which was limited only by the size of the cavity in which it was packed. In tamponing the anterior or posterior nares these sponges had proved far more efficient than cotton or gauze, which had to be frequently reinserted; this inconvenience was not found with the Bernays sponge. Then the slow absorbing power of cotton or gauze was no guarantee against hemorrhage. In case of epistaxis, the sponge should be cut in semicircular form and introduced into the nostrils with the convexity upward. A string could be fastened to the sponge to assist in its removal. In tamponade of the posterior nares a disc could be used without shaping. As to the other uses, the speaker said he had found these sponges an excellent splint in the later stages of an Asch's operation for deflected septum. They were also of use in fracture. They could be covered with gutta percha and introduced into the nares to prevent adhesions forming after operations. They were useful as intranasal dressings by reason of their power of absorbing discharges. As a means of conveying medicament to various parts of the nose, they were also very useful. As in the case of all nasal tampons, hemorrhage might occur on their removal; this could be avoided by the application of some antiseptic ointment to the sponge before its introduction.

Dr. Simpson, in answering a question, said that he had not noticed that it caused severe pain; that the expansion would be in proportion to the amount of hemorrhage. The cavity of the nose was soon filled by the sponge, with but little pain. The sponges were particularly applicable in those cases in which it was absolutely necessary that no hemorrhage should occur after operation. He farther said that the sponges did not contract; they continued to expand and were subject to the same rules as applied to any other packing.

BELLADONNA ACCORDING TO ITS DESERTS.

One of our correspondents, a physician of long experience and excellent observation, writes to thank us for RED CROSS NOTES No. 12, and asks that they be sent regularly. He states that he is particularly pleased with our method of treating the subject of Belladonna. He says:

"This Belladonna is a peculiarly valuable medicinal agent. I use it in ointment and plaster; have always obtained desired results.

"I was recently greatly surprised, when traveling, to find several physicians who never used Belladonna in any form. A druggist in a large city informed me that prescriptions containing Belladonna were very rare. This state of affairs may not be general.

"But I have been led to believe that a little missionary work regarding Belladonna might be good, especially among the colleges from which our physicians emanate.

"As a plaster in functional heart troubles, especially in children, combined with an astringent ointment in hemorrhoids, frequent minute doses internal in diphtheria, in incipient stages of tonsilitis, it is valuable when properly combined.

"I have to thank you for your good words about Belladonna, which I hope will induce some of your readers to use it according to its deserts."

Lydia Pinkham and Woodbury Soap in up-to-date uniforms.—After *Printers' Ink*.

DIFFICULTIES IN THE ASSAY OF BELLADONNA PLASTERS

BY BENNETT F. DAVENPORT,
Analytical and Consulting Chemist,
Boston, Mass.

That there should be difficulties in the correct assay of the Belladonna Plasters sold in the market, as against the assay of the simple liquid or solid extracts of Belladonna, is to be expected when it is considered that the mass of the commercial plasters contain India rubber, pitch, resin, gum, wax and other ingredients, which act like a tenacious varnish and seem to combine with or occlude the alkaloids.

In my professional experience of over thirty years I have examined most all the well known brands of Belladonna plaster, and have found that the details of this general plan of assay needed to be varied with the different brands to gain the best results. In illustration of this need, I have learned of an instance where a sample of the solid extract of Belladonna and of a plaster made up therefrom were both submitted for assay to a well-known laboratory of the best repute, and where the examination of alkaloidal drugs and extracts had been for many years of daily occurrence. A prompt and correct report was made upon the extract, but only after repeated trials could they obtain as much as less than half of the alkaloids known to have been put into the plaster. The main difficulty seemed to be due to the India rubber and gums present in the plaster mass.

The most generally approved "shake-out" methods of assay for alkaloids in Belladonna plaster, when made up with a rubber mass, have certain practical difficulties, inherent in the solvents and precipitants used, which render them very liable to yield erroneous results.

The chloroform and acidulated water used as solvents, and the strong alcohol used for precipitating the rubber and the ammonia water for the alkaloids are unfortunately soluble in each other in some degree, and thus cannot effect a perfect separation of the alkaloids either in their free condition or as salts from their solution, even when an apparently good line of separation is obtained between their chloroform and water solutions, when considerable alcohol is also present.

According to the last U. S. Pharmacopea, alcohol and chloroform are soluble in each other in all proportions, as are also alcohol and water, while chloroform is soluble in about 200 volumes of cold water. Ammonia and its salts are likewise soluble in some degree in chloroform. By the U. S. P. the free alkaloidal atropia is soluble in 130 parts of water, 3 parts of alcohol and 4 of chloroform, while the sulphate salt is soluble in 0.4 parts of water, 6.2 parts of alcohol and 694 parts of chloroform. Alcohol and chloroform then dissolve the alkaloids as 3 to 4, while alcohol and water dissolve the salt as 15 to 1.

Following the approved methods with care all the alkaloids should be readily obtainable in a free state in an alcoholic chloroform solution from which the rubber has been nearly all precipitated. Considerable care must be taken, however, to avoid troublesome emulsification of the successive shake-out solutions from this original solution. In this direction much may be done, but unfortunately the alkaline alcoholic chloroform solution will not readily yield up all the alkaloids to the acidulated water. On the other hand, the portion of alcohol passing over into the water will carry with it some of the alcohol soluble portion of the rubber mass, if such be present at this stage. To escape this, the alcohol might be driven off by evaporation in a current of warm air, but as chloroform boils at 60 to 61 C., and even strong alcohol at 78 C., the chloroform must be driven off also, and the residue redissolved in fresh chloroform. Else the alcohol present will act

still more unfortunately in the acid water solution of the alkaloid when it comes to be shaken out with alkaline chloroform. As the free alkaloids are soluble in alcohol and in chloroform in the proportion of as 3 to 4, alcohol, if present in any large proportion, would undoubtedly hold back in the water from the chloroform a large proportion, of the alkaloid.

The use of heat to aid solution in any part of this process seems to cause loss of alkaloid. Even the evaporation of the chloroformic solution of the alkaloid, if conducted so that vapor comes in contact with a flame, may cause neutralization of form of the free alkaloid by the hydrochloric acid then formed.

The many difficulties of the processes of assay, some of which I have mentioned, are undoubtedly the proper explanation of the widely differing results which presumably skillful analysts have reported as obtained from their assays of different portions of the same lot of plaster. Thus recently a certain public analyst has reported certain lots of plaster to contain the percentage given in the column below marked "E," while his official confrere has reported that the same lots had the percentage given in column marked "H."

BELLADONNA PLASTER ASSAY.

Same Sample

Analyst E.	*Analyst H.*
0.010	0.085 per cent.
Mere trace	0.120 per cent.
0.153	0.320 per cent.
None	0.090 per cent.
None	0.120 per cent.
None	0.060 per cent.
None	0.100 per cent.
0.389	0.420 per cent.
0.358	0.410 per cent.

IN ORDERING : :

Absorbent Cotton or Surgical Gauze, if Johnson & Johnson's make is wanted, it would be well to specify

RED CROSS ABSORBENT COTTON
RED CROSS GAUZE

The Digesting Melon

The active agent in Johnson's Digestive Tablets comes from a tropical digesting melon (the Carica Papaya Melon), which can digest any kind of food known to man.

The fruit is in taste, color, shape and general appearance somewhat similar to a muskmelon or cantaloupe. It possesses the peculiar quality of digesting meats, vegetables, bread, pastry, cake, cheese, fish. Travelers have long observed that the most pronounced attacks of indigestion give way to a slice of one of these melons. Confirmed dyspeptics have been cured by eating this melon, which is commonly known as the Pawpaw.

In Johnson's Tablets the active principle of the melon is preserved in a very remarkable degree.

OUT OF PRINT.

MAC GREGOR & GOODRICH.

AUDUBON, MINN., August 15, 1898.

Gentlemen—A few days since we sent you a postal requesting you to send us Red Cross Notes regularly. Since then we have looked over the two copies received both carefully and closely, and find them more interesting and instructive than we expected. If you will send us the back numbers they will be greatly appreciated.

The writer has used J. & J. goods during the past fifteen years, and has never had any fault to find with them.

Yours truly,

MAC GREGOR & GOODRICH.

Back numbers of Red Cross Notes are out of print, except numbers 10 and 12 of series I; and numbers 1 and 2 of series II. Any of these numbers will be forwarded on application.

We have frequently stated in these columns that to receive Red Cross Notes regularly it is only necessary to write a request to this effect.

Belladonna

[Formu

EMPLASTE

BELLA

Alcoholic Extract of B
Resin Plaster, ***four hun***
Soap Plaster, ***four hund***

To

Melt the Plasters on a w
donna, and continue the he
mass results.

CONSTITUENTS OF BELLADONNA . . .

Atropine.
Hyoscyamine.
Belladonnine.
Atropamine.
Apoatropine.
Starch.
Malic Acid.
Chryastropic Acid.
Leaxtropic Acid.
Succinic Acid.
Acetic Acid.
Prendatorin.
Phyteumscolla.
Gum, Wax, Mucilage, Asparagin, Albumin.
Atrosin.
Chlorophyll.
Potassium Salts.
Magnesium Malate and Phosphate.
Calcium Malate and Oxalate.
Sodium Phosphate.
Ammonium Salts.

Johnson's Belladonna Plaster conforms st

BELLADONNA PLASTER

Belladonna gathered in proper time and
soluble constituents of the drug by macero-pe
ted by mixing cold with plaster mass. See U

JOHNSON'S BELLADONNA
CONSTITUENTS OF BE

"After a careful test of ***Johnson's Belladonna Plasters*** in the Philadelphia Hospital for Skin Diseases, I find an ***increased action and more immediate effect.***"—JOHN V. SHOEMAKER, M. D.

"***John***
has met
provemen
dition of
base with
pores and
absorbed."

The essential feature of Joh
of an absorption prom
from fatty matte
and increas

WORLD'S FAIR, 1893, JOHNSO
EXCELLENCE

ters at a Glance

lladonna Plaster]

BELLADONNÆ.

PLASTER.

a, *two hundred grammes*	200 Gm.
nes	400 Gm.
les	400 Gm.
thousand grammes	1000 Gm.

; then add the Extract of Bella-
g constantly, until a homogeneous

Assay of Johnson's Belladonna Plaster, 1886, by Drs. Davenport and Battershall: Johnson's Belladonna Plaster, 0.387 per cent. alkaloid.

By Dr. Bennett F. Davenport, 1898: Johnson's Belladonna Plaster, 0.384 per cent. alkaloid.

"I believe that the standard which I have set for alkaloids in Belladonna Plasters is a fairly proper one, 0.3 per cent., and am strongly inclined to advocate it for adoption in the United States Pharmacopea.

CHARLES RICE, PH. D.,
Chairman Revision Committee.
U. S. Pharmacopea.

e Pharmacopea in strength and kind of drug used

ON & JOHNSON'S FORMULA.

racted with alcoholic menstruum so as to retain all reduced in vacuo to a semi-solid extract. Incorpora-
ge 491.

R CONTAINS ALL THE SOLUBLE NA IN ABSORBABLE FORM.

adonna Plaster proval. An im-
n made in the ad-
id to the plaster opening the skin
the drug to be
Medical Journal.

"I am greatly pleased with ***Johnson's Belladonna Plaster.*** I find it gives ***quicker and better effect than any other*** I have hitherto used."—DR. D. H. AGNEW, *University of Penna.*

's Belladonna Plaster is the use base that frees the pores us insuring reliable tion of the drug.

LLADONNA PLASTER. AWARD FOR ORMITY, EFFICIENCY.

A CHAT WITH THE PROFESSOR.

A PEEP INTO SPACE.

The smallest particle of matter that can exist in a free state is called a molecule (small mass).

These molecules are made up of still smaller "somethings" called atoms, and a peculiarity about the whole thing is that if we break up a molecule into its constituent atoms these elementary bodies combine among themselves in a different order forming new molecules of new bodies, entirely different from the molecules with which we started out.

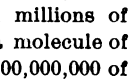
We say that an atom has no real existence as an atom, and yet we express the formula of any molecule by giving the atoms which compose it a name and a number, for instance the chemical formula of water is H_2O, meaning that one molecule of water is made up of two atoms of hydrogen and one atom of oxygen. The finest particle of matter we could obtain by a long pulverizing or the smallest particle visible under a microscope will still contain millions upon millions of molecules. Austin says "a molecule of hydrogen is not quite the 500,000,000 of an inch in size," an atom of hydrogen, then, is just half this size, and is said to weigh .0,000,000,000,000,000,000,000,004 gramme.

Molecules taken individually are mighty small. Notwithstanding all this we can gain an idea of what they are, and a tolerable view as to the arrangement of their constituents, not that any one has ever seen or ever will see either an atom or a molecule as it exists in space, still we can construct such a mighty nice arrangement of such facts as are appreciable to our senses, that we can at least make believe that we see them. For instance, make some rings of smoke from a cigar, send one ring whirling after another, and as they go tumbling through and around each other you see the form of atoms, and the way molecules are built up according to the vortex hypothesis.

Looking back to our molecule of water, we generally write its formula as H_2O. Here a natural question suggests itself: How are these two atoms of hydrogen joined to the one atom of oxygen to make up one molecule of water? Are the two H's joined to each other and in turn joined on to the O, thus: H-H-O, or is their connection made this way, H-O-H?

It is not easy to answer such a question for all chemical compounds, but for many compounds, indeed for some which are very complex, we are able to draw a very probable conclusion as to the relations which exist between the atoms. These conclusions are deduced from long observation of all the reactions of a compound and that arrangement of its atoms is adopted which best explains the greatest number of reactions.

Take an easy one, ammonia NH_3; experience has taught that the three hydrogen atoms are joined on to the one atom of nitrogen without being connected with each other, thus:



Just how the chemists work this out is a long story, but it is easy to see that in the formula of a molecule of ammonia as thus expressed, one atom of N binds three atoms of H.

Looking a little farther we should find that an atom of Cl (chlorine) would bind one atom of H and form muriatic acid; that a carbon atom can bind four atoms of H (CH_4 marsh gas), and so going on we find that this power to bind, hold, link or fix atoms is different with different elements. That in the molecules of the chemical compounds the constituent atoms are united in accordance with this binding power. We have also learned that in organic compounds molecules themselves are linked to atoms or molecules and thus we can build up on paper

ery elaborate structures. This binding ower is sometimes expressed with trokes as H—,O=,N=,C≡, each troke representing a binding power qual to *one* when compared to the bind- ng power of hydrogen which is taken as unit. Now, while it is not strictly rue that atoms have individual at- ractions sticking out of them, some ery good chemists have gone so ar as to represent the atoms joined ogether with one, two, three or more hands. Hydrogen has one hand. Oxygen has two hands. Carbon has four hands, etc. The letting go and taking hold of hands, or the breaking or joining of strokes which stand for the bonds by the means of which the atoms hang together, is one way to picture the formation and breaking up of compounds. This is really all we know of chemistry.

Whatever the ultimate truth may be, we seem to know that compared with a hydrogen atom every element has a certain binding power or chemism that is expressible in numbers; this is called its chemical worth or valence; I often picture atoms, and express their valence this way:

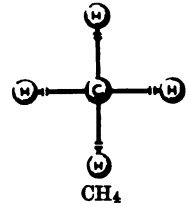
Hydrogen with a valence or binding power of one.

Oxygen with a valence of two.

Nitrogen with a valence of three.

Carbon with a valence of four.

Now, going out into a swamp and punching a stick down to the bottom of a stagnant pool, catching some of the bubbles of marsh gas which rise, I get a compound that, if I could see its make up, might appear like this:

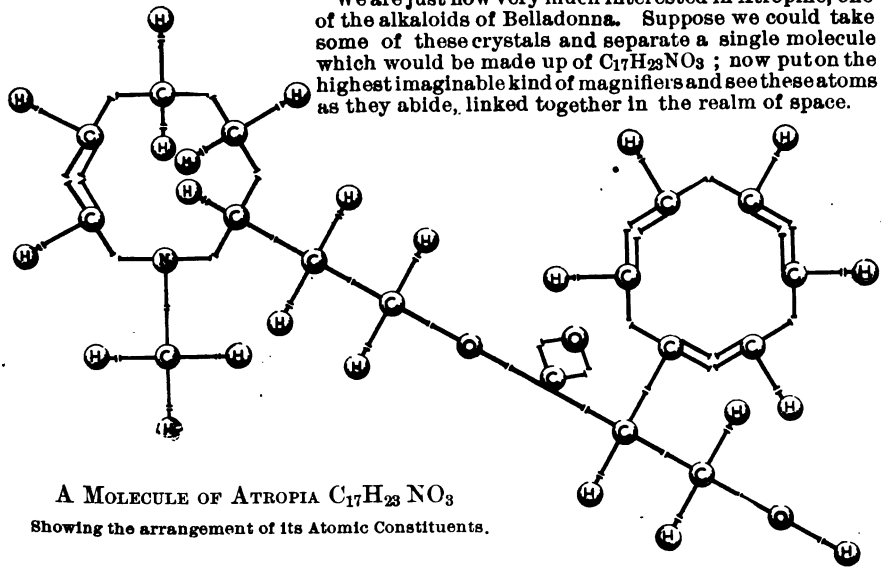


CH_4

Here we see Carbon with its four hands each seizing an H. This is the simplest organic compound that can exist (methane), and starting with this and tacking on atom after atom, all the rest of the organic world can be built up.

Now, looking at atoms as bodies which tangibly occupy space therefore having shape and dimensions, and that each atom has one or more valences projected toward and linking some other atom, we can imagine how any given compound looks as it exists in space.

We are just now very much interested in Atropine, one of the alkaloids of Belladonna. Suppose we could take some of these crystals and separate a single molecule which would be made up of $C_{17}H_{23}NO_3$; now put on the highest imaginable kind of magnifiers and see these atoms as they abide, linked together in the realm of space.



A Molecule of Atropia $C_{17}H_{23}NO_3$

Showing the arrangement of its Atomic Constituents.

A STARTLING SUGGESTION ON THE TREATMENT OF CONSUMPTION

OFFICE OF
E. L. BOHM, M. D.,

SAN FRANCISCO, CAL., Aug. 22, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Could you furnish me with a sample of very fine pulverized Papoid? I would like to use it for inhaling purposes in a case of Phthisis Pulmonaris. I advance hereby for the first time the theory formulated by myself that inhalations of a powerful digestant will digest tough, offensive muco-purulent accumulations, which are not removed from the lungs by coughing, clear the surfaces, especially in cavities, and produce a mass easily removed by coughing. Antiseptics may be combined, or used after the expulsion of the liquified mass from the lungs, at the same time keeping the *prima via* aseptic and establishing proper hygiene and diet, much may be gained to combat the dread disease. I have used Papoid on ulcerations with great success, and I firmly believe that the lungs after breaking down may be cleared in the above manner and allow cicatrization. Catarrh of the bladder should be benefitted in the same manner. Other mucous surfaces and cancers should derive great benefit.

Respectfully yours,
E. A. BOHM.

Could you suggest b st apparatus for inhalation so that measured doses may be inhaled? Or do you think best that diluted Papoid used with atomizer would be preferable?

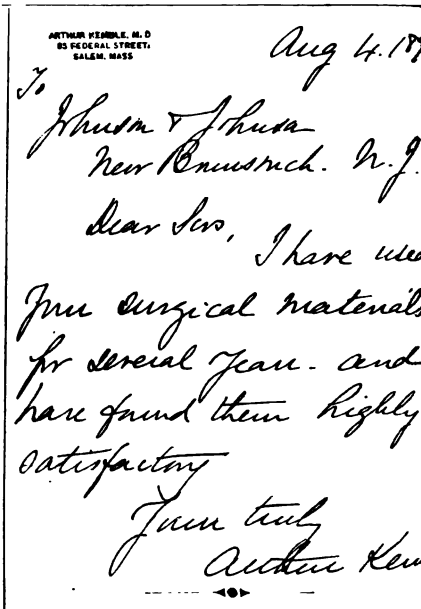
The theory advanced by Dr. Bohm, while startling, seems plausible. A supply of Papoid has been forwarded for experiment and his results are awaited with interest.

It is probable that inhalation of a solution by the aid of a spray will be found the most convenient mode of application. As Papoid is not destroyed by heat, the steam spray apparatus may be used.

Papoid may be made into a solution with glycerine and water. Any of the internal antiseptics may be added without affecting the activity of Papoid.

Always Specify on Your Prescriptions

Red Cross Absorbent Cotton
Red Cross Gauze



ASEPTIC TOWELS

Surgical practice on the battle field during the war with Spain demonstrated the usefulness and need of sterilized towels. Reports and letters show that so simple an article as a towel, especially if sterilized, was one of the most valuable articles of the surgical armament. They were found useful, not only for wiping hands and instruments, but were utilized for covering improvised operating tables, for wrapping dressings within their folds and in the absence of other dressings, they were made to do duty as bandages, pads, &c.

To supply the demand thus created, Messrs. Johnson & Johnson are making a towel from closely woven bleached absorbent cloth. This towel is about three-fourths of a yard in length by one-half yard in width; it is wrapped, sterilized and sealed, each towel being in a separate package. They can be washed and re-sterilized for use, but as they are cheap enough to use once and throw away, this latter course has been found to be the safer.

Careful surgeons will be glad to take advantage of this seemingly trifling, yet important article for use in handling and dressing wounds. Johnson & Johnson will be glad to send to any surgeon in active practice a sample of these towels upon written request to this effect.

FINGER HAT.

This is a rather curious name that has been given to a little Finger Bandage, made to supply the needed wants for a bandage for fingers, toes and hands in case of cuts or other slight injury. It is made of adhesive material similar in composition to the Maw's Adhesive Plaster, spread on a water-proof back and cut into narrow strips.

The composition is of such a nature that the warmth of the body causes it to adhere, and in winding it round a finger or limb, it adheres to itself, forming a firm, adhesive, water-proof covering.

The Plaster is sufficiently antiseptic and healing to be of service in all minor injuries.

As this bandage allows the free use of the fingers it is much more serviceable, convenient and cheaper than the well-known "Finger Cots."

The Finger Hats are put up in envelopes to retail for 10 cents each.

ADHESIVE PLASTERS FOR STITCH IN THE SIDE.

Solberg (*Norsk Magazin for Laegevidenskaben*, 1896, No. 9; *Deutsche Medizinal Zeitung*, August 5, 1897,) reports that in a case of pneumonia with severe pain in the side in which he could not resort to the injection of morphine, he applied a strip of adhesive plaster, and the result was surprisingly prompt, as in cases of fracture of a rib. He has since employed the plaster in six other cases of severe pain in the side occurring in the course of pneumonia. In four of them, in which the inflammation was in the lower lobe, the improvement was notable. In another case, in which the "stitch" was really in the scapular region, alleviation was effected by applying the strip of plaster directly beneath the axilla. In the sixth case, in which the "stitch" was not severe and the strip was removed at the end of a day because the patient felt a little co strained by it, it was applied again at the patient's request. Even the dyspnoea and the cough seemed to be mitigated, according to Solberg's observation and the patient's own statements. The strip used was not more than an inch and a half wide, applied as in cases of fractured ribs.

HIGHLY VALUED.

LEWISTON, IDAHO, August 4, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I have received Red Cross Notes from No. 8 to 11 inclusive and value them so highly that I request the favor of you to continue them during your pleasure.

Yours respectfully,

J. S. STERLING, M. D.

SUPERIOR TO ALL OTHERS.

J. KING PARKER,
Case Building, Cor. Main and Bridge Sts.

SOMERVILLE, N. J., August 1, 1898.

Gentlemen—Having had the pleasure of reading several of your Red Cross Notes, I would be very much pleased to receive copies of them regularly.

I am a graduate of "The First Aid to the Injured," and in consequence use your goods to some extent and have found them superior to all others,

Yours very truly,

J. KING PARKER.

INDISPENSABLE.

L. O. GOETCHIUS, M. D.,
4 Clinton Place, Clinton Street,

SARATOGA SPRINGS, N. Y., August 8, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I will be pleased to receive the Red Cross Notes. Your goods are very fine. The Adhesive Plaster indispensable.

Very truly yours,

L. O. GOETCHIUS.

O. K.

DR. S. E. NEWTON,
No. 46 East Second South Street.

SALT LAKE CITY, UTAH, August 7, 1898.

Messrs. Johnson & Johnson:

I will be pleased to receive the Red Cross Notes regularly from you. With your kindness I have received two numbers from you. Thanks for them. Your goods are O. K.

Very truly,

DR. S. E. NEWTON.

PERFECT CONFIDENCE.

WHITE WATER, WIS., June 18, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Have used your gauze with perfect confidence for some time. Please send Red Cross Notes regularly to my address, and oblige.

Yours truly,

E. L. CARY.

HAVE THE PREFERENCE.

L. W. DAVIS, M. D.,
415 Union Street.

KNOXVILLE, TENN., July 25, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I have for years used your dressings and give them preference. Probably you have something that I am not familiar with.

Most respectfully,

L. W. DAVIS, M. D.

WAR ECHOES.

Aseptic and antiseptic surgical methods have been given a fair trial and the success attending them, as compared with the results during former wars, is as surprising as it is gratifying. It was fully expected that in such a warm, sultry climate as that of Cuba the proportion of deaths to wounds would be enormous, but these expectations, happily, have not been realized. Much credit must be given to the deviser of the plan of having each soldier carry an individual "repair kit." We are assured that many flesh wounds, even though quite serious, when dressed immediately with antiseptic dressings from the wounded man's own emergency case, have healed as readily as a schoolboy's cut finger without inflammation or suppuration.—*Medical News.*

Official reports will no doubt recommend the use of small-bore rifles and high-velocity steel or copper-encased bullets as the most effective and humane weapons of war. It is conceded that the object to be gained in battle is not the killing of the greatest number of men but their disablement to such an extent that they can fight no more, at least until time enough has elapsed for their wounds to heal. This is the effect of the Mauser and other rifles of this class. The man who is struck receives a clean-cut wound which, while it disables him for fighting, heals quickly and leaves him in a few weeks almost as sound as before. Even when a bone is struck it is not nearly so apt to splinter as was the case when the old Springfield rifles were used—*Journal*

ABSOLUTELY RELIABLE.

CRESSONA, PA., July 14, 1898.

Johnson & Johnson:

Gentlemen—Through the kindness of a friend, I had the opportunity of looking over one of your Red Cross Notes and noting some excellent information in it. I desire very much to receive the Notes regularly if possible.

I am using your Plasters and Surgical Dressings exclusively in my practice and place absolute reliance upon them. Will you kindly send me price list and any new literature.

Yours truly,

G. O. O. SANTEE, M. D.

DOESN'T CONFLICT WITH THE ETHICS OF THE PROFESSION.

Johnson & Johnson, New Brunswick, N. J., manufacturers of surgeons' specialties, issue a monthly monograph containing articles by well-known surgeons and a good deal of miscellaneous information about their particular specialties. It comes pretty close to being a medical journal of respectable proportions, and carries with it a good deal more weight as an advertising medium than will an ordinary circular.—*The Advertising World.*

HAVE ALWAYS BEEN THE BEST.

DR. JAMES W. NEELY,
228 South Main Street, (West End).

PITTSBURGH, PA., June 20, 1898

Dear Sirs—This day I received a copy of Red Cross Notes for which I am greatly obliged and request that you place my name on the list that I may receive the same regularly together with your other publications.

Some time ago I had the pleasure of meeting a representative from your house, at the drug store here in this end of the city (Greineisen & Co.), and took occasion to speak of your aseptic preparations, plasters, &c., which have always been the best; was glad to have the opportunity of speaking in the way of praise before the druggist at that time. He fully represents your goods.

Respectfully, JAMES W. NEELY.

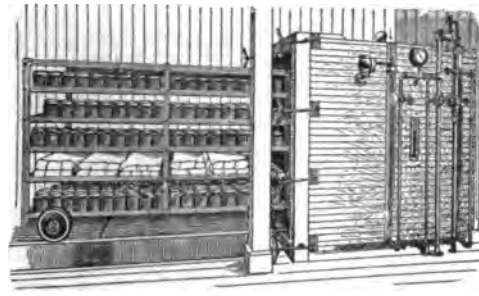
Starting Points.

From Wild Belladonna—gathered uniformly in time and season, and in the same locality—a solid extract of Belladonna is made that gives an even yield of atropia. Such extract is standard and we use it.

Other extracts contain widely varying amounts of atropia. The Pharmacopeas, U. S. P. and B. P., prescribe standard quantities of extract to be used in plasters. Johnson's Belladonna Plaster reaches—does not pass—these standards.

STEAM GERM KILLER

The steam sterilizer shown in the cut herewith is in use in the laboratories of Johnson & Johnson and was built after considerable experiment with various forms of sterilizing apparatus. The chamber is large enough to hold a wagon-load of goods. It is constructed with thick walls of metal, asbestos and other non-conducting material. The interior is lined with steam pipe radiators for producing heated air within the chamber. The doors are steam tight and held in place by ratchet screws. The chambers are also fitted with steam supply and escape connections, gauges for pressure and vacuum, safety valves, exhaust valves, etc. Cars of iron with trays carry the articles to be treated. Supply pipes controlled by valves admit live steam to the interior of the chamber.



STEAM VACUUM STERILIZER
Johnson & Johnson's Laboratories

After the gauze passes into this chamber, the doors are closed and it then becomes a hot-air chamber. The air is then exhausted to a vacuum, saturated streaming steam is then let in; the temperature soon rises to possibly 240° F., and the pressure gauge indicates 5 or 10 pounds. The steam pipes are now closed; the vacuum pump is again started until the proper vacuum is obtained.

Again steam is turned on, and so on in turn, currents of saturated steam follow each other through the vacuum for from one to two hours. Every part of the chamber is penetrated, every fibre is subjected to the action of this highest of bactericides. No form of germ life can pass through this process.

Linton Moist Gauze Jars are hermetically sealed while within this chamber.

USES ONLY J & J. GOODS

J. N. DINGES,
Druggist and Pharmacist.

BOALSBURG, PA., August 20, 1898.

Gents.—I will be pleased to receive the Red Cross Notes, and shall use only J. & J's. goods.

Yours truly, J. N. DINGES.

NONE OTHER WANTED

BALDSTOWN, KY., August 20, 1898.

Dear Sirs—I will be glad to receive the Red Cross Notes regularly, and to have your literature on Johnson's Digestive Tablets. We want Johnson & Johnson's goods always and none other. They always give satisfaction.

Yours truly and fraternally,
THOMAS D. WILLIAMS, M. D.

USES NO OTHER

GOSHEN, INDIANA, August 20, 1898.

We are very thankful for Red Cross Literature. We are quite familiar with your Plasters and Absorbent Cotton, having used no other for a number of years.

Respectfully, A. C. JACKSON.

NEATEST AND BEST

MINNEOLA, FLA., August 27, 1898.

Gentlemen—Sample copy of your Red Cross Notes lies before me. Your goods are undoubtedly the neatest and best I have ever used.

Fraternally yours,
BEN. S. ABBERGER, M. D.

Public Assays 12 Years Apart

Show Great Uniformity in Johnson's Belladonna Plasters.

1886, December 21.

Dr. Bennett F. Davenport, Member of the American Chemical Society, also of London, Paris and Berlin, of the British Society of Public Analysts, also German Society of Analytical Chemists, and Prof. J. P. Battershall assayed Johnson's Belladonna Plasters.

This was their report:

Johnson's Belladonna Plaster .387 per cent. of Atropine in mass.

1898, March 31.

Dr. Bennett F. Davenport made another assay of Johnson's Belladonna Plaster.

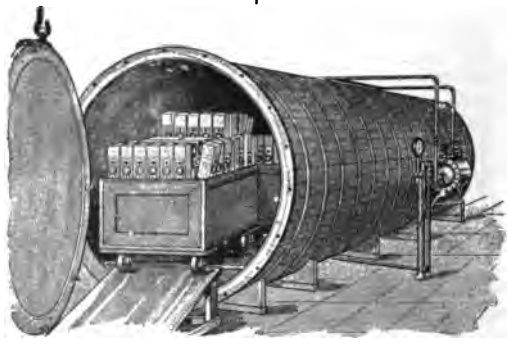
This is his report:

Johnson's Belladonna Plaster .384 per cent. of Atropine in mass.

Johnson's Belladonna Plaster shows unvarying uniformity in strength, greatest uniformity in results.

LARGEST GERM DESTROYERS IN THE WORLD

In Johnson & Johnson's laboratories there are no end of germ destroying machines; the one shown in the cut is notable as being the largest sterilizer ever constructed. (A second one of the same pattern is now being built in these laboratories.) Three thousand pounds of cotton or five thousand yards of gauze can be packed in this chamber and every fibre charged with germ destroying vapors at one operation. The principal feature of its operation is to place the dressings to be sterilized within the chamber, close the doors air tight, create a vacuum, the vacuum is then filled with formaldehyde vapors under pressure.



VACUUM VAPOR STERILIZER
Johnson & Johnson's Laboratories

By actual experiment it has been shown that germs in the center of a large roll can be destroyed in a few minutes. In practice the dressings are subjected to the action of the vapors for several hours.

DON'T USE BOXING GLOVES

Gloves for employment in aseptic surgical work have been recently advocated on theoretical grounds by so many prominent surgeons that many of the younger men feel in duty bound to use such gloves in order to be up to date. To all such younger men who have misgivings prompted by natural sense, I wish to state that one surgeon at least can be depended upon to fortify them by his example in refusing to adopt anything that will injure the surgeon's most precious possession—the sense of touch.

I have watched various European and American operators at work with gloves, and have asked about their statistics. I will choose Weir's nascent-chlorine skin sterilization and untrammelled fingers that are quick to work deftly in doing neat, accurate work. My statistics will always be at the disposal of men who wish them for comparison with glove statistics. To the younger generation of surgeons, I say, fight with your might against the idea of using a means that will damage your most precious possession—the sense of touch. Put aside the temptation to be up to date theoretically, at the cost of adopting a destructive agent in your work. As a test of skill palpate a normal appendix instead of trying to secure a pediculus pubis with the aid of a pair of boxing-gloves.

ROBERT T. MORRIS.

CONTINUING IN GOOD WORK.

POLYTECHNIC COLLEGE,
FORT WORTH, TEXAS, August 4, 1898.

Gentlemen—I have just received a copy of Red Cross Notes, and think I would like to receive them regularly. I have used some of your Aseptic preparations and shall continue to do so. Please address. DR. J. L. ISAACS.

The constitutional effects of belladonna when locally applied must be carefully watched, as I have seen cases of pronounced poisoning come from such application. Also the effects of belladonna locally applied as a pain relieving agent are most pronounced when the pain is superficially seated, and is not so very effective when the deeper stuctures are involved.—F. J. LOCKE, M. D.

NAMES OF BELLADONNA PLASTER.

"A rose by any other name—"

Emplastrum Belladonna. (U. S. Ph., Br. Ph., Germ. Ph., Belg. Ph., Swiss Ph., Neth. Ph., Russian Ph.)

Emplatre d' extract de Belladone. French Codex.

Emplasto de Belladonna. Sp.

Emplatre cum Extracto Belladonna. Fr.

Tolkraut Pflaster
Belladonna Pflaster } Ger.

Tolkirschen Pflaster.

Mekilworth Plaster.

Bela Done Plaster.

Dwale Plaster.

Deadly Night-shade Plaster.

EVIDENCE OF LIFE.

DR. JOHN S. STEWART, M. D.,
1801 Arch Street,
PHILADELPHIA, PA., July 21, 1898.

Messrs. Johnson & Johnson:

Dear Sirs—Will be glad to receive your Red Cross Notes. You certainly seem to be alive to the interests and necessities of the modern aseptic surgeon.

Yours truly,
JOHN S. STEWART, M. D.

GOOD FOR TWINS.

THOMAS F. HEEBNER, M. D.,
POTTSVILLE, PA., July 22, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Sirs—My wife still believes your Antiseptic Baby Powder is the only "good thing." Our twins can testify that she is correct.

Please send me a dozen boxes *via* United States Express, forward your bill and I will do the balance.

Yours,
T. F. HEEBNER, M. D.

A BLISTER THAT FAILED.

W. A. STEPHENS, M. D.,
374 Ontario Street and 342 Jennings Avenue.
CLEVELAND, OHIO, July 20, 1898.

Messrs. Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—I inclose a sample of Blister Plasters. Have prescribed two from the package from which this piece was taken, and I am sorry to state that neither of them, although applied with care and allowed to remain over night, produced even redness, let alone blisters.

Very truly yours,
W. A. STEPHENS, M. D.

The Blister Plaster of which Dr. Stephens complains was not Canthos, it was the ordinary India Rubber Blister, the kind that usually fails to draw a blister.

Except Canthos, all the blisters in use act slowly even when fresh. They become inert with age and decompose.

On the other hand, Canthos can always be relied upon. Time after time, reports have been received detailing the fact that samples of Canthos after lying exposed in a physicians' office for years when applied produced quick and perfect vesication.

The moral is: *Use Canthos*, as Canthos is always sure to blister.

DANGER IN SUBLIMATE TABLETS.

DR. SYDNEY A. DUNHAM,
THE LASALLE,
Cor. of Chippewa and Georgia Streets.
BUFFALO, N. Y., June 20, 1898.

Messrs. Johnson & Johnson:

Dear Sirs—I would be pleased with a sample of your Mercuride Leaves. I know of a case in Tonawanda where a patient was poisoned by the nurse giving a Corrosive Tablet for other medicine.

Very truly yours,
S. A. DUNHAM.

THE WEAPON-SALVE

[From *Natural Magic*].

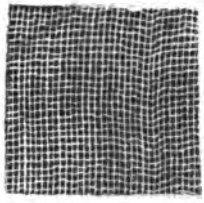
Given heretofore to *Maximilian* the Emperor, by *Paracelfus*, experimented by him, and always very much accounted of by him while he lived: It was given to me by a noble man of his Court. If the Weapon that wounded him, or any ftick dipt in his blood be brought, it will cure the wound, though the Patient be never fo far off. Take of the mofs growing upon a dead man his fcull, which hath laid unburied, two ounces, as much of the fat of a man, half an ounce of Mummy, and man his blood; of linfeed oyl, turpentine, and bole-armenick, an an ounce; bray them all together in a mortar, and keep them in a long ftreight glafs. Dip the Weapon into the oyntment, and fo leave it: Let the patient in the morning, wafh the wound with his own water; and without adding anything elfe, tye it up clofe, and he fhall be cured without any pain.

The Supreme Test

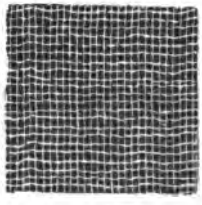
The supreme test of a Belladonna Plaster is its power to subdue pain, and thus aid in the cure of disease.

A Belladonna Plaster which fails in this respect is worthless, no matter how high or how low may be its chemical assay. To prove the high value of Johnson's Belladonna Plaster as a pain relieving agent, Johnson & Johnson offer to send a sample to any physician who will write asking for the same.

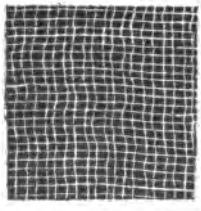
The Only Kind That's Fit to Use on a Wound



Red Cross Gauze, No. 1.
32 x 28.



Red Cross Gauze, No. 2.
28 x 24.



Red Cross Gauze, No. 3.
24 x 20.

When you want

High Grade Gauze,

Surgically Clean,

Free from Germs,

Sterilized, Aseptic,

You can get it

By ordering

Red Cross Gauze

Johnson & Johnson

Germ-proof Container for 25 and 100 Yard Rolls

Also put up in one and five yard rolls, every package sterilized and sealed.

This kind costs no more than the other kind

A portion can be cut off without contaminating the remainder.

MISUSE OF THE NAME OF THE REVISION COMMITTEE

EXPERT'S ERRORS

A PRESENTATION TO THE PHARMACOPEIAL COMMITTEE

A presentation, showing the errors published by expert Carl E. Smith, under the name of the Committee of Revision, United States Pharmacopeia, 1890-1900, in an examination of belladonna plasters, has been made by Johnson & Johnson in the form of a letter addressed to each member of the committee, showing the uncommercial and unprofessional manner in which the committee's name had been used as endorsers of a certain brand of plasters. Accompanying this letter was sent a copy of Red Cross Notes No. 3, giving reports of Messrs. Reynolds & Caspari, revealing the errors of the committee's expert, together with opinions of Dr. Alfred R. L. Dohme, Dr. Chas. Rice and Messrs. E. R. Squibb & Sons, showing a mistaken interpretation of the Pharmacopeia by the committee's expert. The letter was also accompanied by a photograph of a circular issued by a manufacturer assuming the Revision Committee's endorsements for his products.

The text of the letter is here given:

To--

Charles Rice, Ph. D.,
Joseph P. Remington, Ph. M.,
Robert T. Edes, M. D.,
Frederick A. Castle, M. D.,
James M. Flint, M. D.,
Roberts Bartholow, M. D., LL. D.,
N. S. Davis, Jr., M. D.,
C. Lewis Diehl, Ph. M.,
Robert G. Eccles, M. D.,
John Godfrey, M. D.,
Willis G. Gregory, Ph. G., M. D.,
C. S. Hallberg, Ph. G.,
William W. Mew, M. D.,
Charles Mohr,
Oscar Oldberg, Ph. D.,
Frederick B. Power, Ph. D.,
Henry H. Rusby, M. D.,
Lucius E. Sayre, Ph. G.,
Otto A. Wall, Ph. G., M. D.,
Horatio C. Wood, M. D., LL. D.

Committee of Revision U. S. P., 1890-1900.

We desire to call your attention to an article published in the *American Journal of Pharmacy*, April, 1898, entitled "An Assay of Belladonna Plasters, and the Alkaloidal Strength of Belladonna Plasters of the Market," by Carl E. Smith, from Research Committee D, Section 2, of the Committee of Revision, 1890-1900. This report is doubtless familiar to you.

The report, as it stands, seems to contain several glaring errors, and is greatly at variance with the text of the United States Pharmacopeia. Some of the discrepancies to which we refer will be found in detail in Red Cross Notes No. 3, a copy of which we send you.

In this it is shown that certain deductions and conclusions in the report have been arrived at by the use of an erroneous standard greatly at variance with the text of the Pharmacopeia.

It is here also shown by the researches of Messrs. Reynolds, Caspari and ourselves, together with the declarations of such competent authorities as Dr. Alfred R. L. Dohme, Dr. Chas. Rice and Messrs. E. R. Squibb & Sons, that the standard assumed in the report of the Research Committee has been based upon a mistaken interpretation of the text of the Pharmacopeia, which led the author of the report into further errors, deductions and conclusions.

While it is not our desire to draw the honorable Committee of Revision into a commercial controversy between rival manufacturers, we call your attention to the fact that the report upon its face is made to appear as an attack upon the integrity of several reputable manufacturers of pharmaceutical preparations, and has the effect of injuring their business and professional credit. The report appears to have been made in the interest of one manufacturer, and to endorse the products of this particular maker as against others of at least equal standing and reputation.

Further than this, we desire to call your attention to the fact that one manufacturer has caused this report to be published in an uncommercial and unprofessional manner. That he has accompanied this publication with most ungrateful statements and vindictive abuse of honorable competitors, claiming for such action your authority and consent.

While we do not for an instant attribute to your honorable body the slightest objectionable intent or purpose, in justice to ourselves or to our profession, we cannot remain silent. We therefore ask your attention to the following presentations:

1. That the report published by Mr. Carl E. Smith, under the authority of Research Committee D, Committee of Revision of the U. S. P., contains many glaring errors unworthy of the endorsement of so high an authority as the Revision Committee of the U. S. P.

2. That the standard established in the said report for belladonna plasters is inaccurate, the result of erroneous deductions and conclusions, and is at variance with the text of the Pharmacopeia.

3. That the reported assay of belladonna plasters is a gross misrepresentation of the belladonna plasters of this market.

4. That the figures purporting to represent the amount of alkaloid present in the belladonna plasters obtained from five of the leading American makers is incorrect and untrue.

5. That the statement that only one brand of belladonna plasters found in this market conforms to the United States Pharmacopeia is untrue.

6. That the inference (not directly stated) that Johnson's Belladonna Plasters are below the United States Pharmacopeia standard is absolutely false.

Therefore, for the honor of American pharmacy, and as a redress for the injustice which has been done in your name to ourselves and our honorable competitors, we respectfully ask that you cause a review to be made of the work performed by Mr. Carl E. Smith in your behalf.

Should it be your desire to follow out the course pursued by Messrs. Reynolds and Caspari in the use of an India rubber plaster mass, we should be happy to place, without cost, our plaster-making laboratory in your charge for the purpose, or render any assistance possible.

We have already directed Messrs. Reynolds and Caspari to deliver to you the samples used by them in their researches. These samples have never been in our possession.

In conclusion, we desire to express our high esteem for your eminent committee, begging your careful attention and early response. Respectfully submitted,

JOHNSON & JOHNSON,
F. B. Kilmer.

THE COMMITTEE WILL CORRECT AND UNDO THE ERRORS OF THEIR "EXPERT."

COMMITTEE OF REVISION AND PUBLICATION OF THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA, 1890-1900.

NEW YORK, Oct. 25, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Pressure of office business has prevented me until now from acknowledging the receipt of your communication (with enclosure) on the subject of Mr. Carl E. Smith's paper on belladonna plasters. I do so now, and wish to say that the subject will be carefully considered. I shall eventually communicate with you again on the matter.

Mr. Smith will, of course, have the privilege of making such a reply or statement as will be considered by him necessary and proper.

Very respectfully,

CHAS. RICE,
Chairman of Committee on Revision.

The following shows that active steps are being taken by the Committee of Revision to undo the blunders of their expert, and redeem the good name of this very eminent body:

LABORATORY OF APPLIED CHEMISTRY, NORTHWESTERN SCHOOL OF PHARMACY,
2421 Dearborn Street,

CHICAGO, Oct. 18, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—Dr. Oldberg, as a member of the Committee of Revision of the United States Pharmacopeia for 1890-1900, has referred to me your communication of recent date bearing upon the alkaloidal assay of belladonna plasters, and in particular the investigation by Mr. Carl E. Smith published in the *American Journal of Pharmacy* for May. Dr. Oldberg further desires that I should investigate the subject personally, with the purpose of publishing such results as I may obtain. Dr. B. F. Davenport has not exaggerated the difficulties to be met with in analytical procedure as applied to the quantative removal of alkaloids from plaster mass.

Just at present, I can accept your general offer of assistance in but two respects: (1) that you will send me at your earliest convenience a quantity of your rubber plaster basis, just in condition to be mixed with extract of belladonna in proportions prescribed by United States Pharmacopeia, 1890, and (2) that you will have Messrs. Reynolds and Caspari send me the samples of belladonna plasters as provided for in your above-mentioned letter to Dr. Oldberg.

I propose to use the rubber plaster mass that you send for mixing with extract of belladonna, *which* extract of belladonna I shall assay before and after admixture of your rubber plaster mass, thus studying the influence of the plaster base upon the analytical method used.

Respectfully,

DAVID L. DAVOLL,
Prof. of Applied Pharmaceutical Chemistry.

CHICAGO COLLEGE OF PHARMACY.
465 and 467 State Street.
CHICAGO, October 17, 1898.

F. B. Kilmer, Johnson & Johnson, New Brunswick, N. J.

Dear Sir—I have been considerably interested (and also amused) about the belladonna plaster controversy and desire to thank you for the letter of the 14th inst. and also enclosed notes just received and read.

The examination and reports of commercial belladonna plasters will revive the discussion anent alkaloidal determination, and after all the chemists have had their innings, will, in my opinion, simply emphasize the position taken by the Convention of 1890, that there are but few drugs, or preparations of them, *which require standardization*, and also, that except in few instances, *our knowledge is insufficient* to formulate processes for their assay which are accurate *within reasonable limits* and yet *practicable of application* by the pharmacist.

I have, however, been astonished that any such investigation as that conducted by Mr. Smith, and directed by the Chairman of the National Committee, should be connected or associated with the revision of the U. S. P., so far as the plasters are concerned or utilized for exploiting commercial plasters.

* * * * *

I am very truly,
CARL S. N. HALLBERG,
Prof. of Pharmacy C. C. Phm., Director of National Institute of Phm.

CURRENT COMMENTS.

The office of Red Cross Notes has recently been flooded with correspondence upon the at present very live topic of belladonna plasters. Some of the comments are reproduced in these columns.

Extracts from several are here given:

"It is somewhat unfortunate that under the guise of scientific discussion any one should resort in the slightest degree to personal detraction. If the subject is great enough to be discussed at all, it is worthy to engage the highest faculties of the human mind; vituperation and vulgarity are here out of place; arrogance is not born of intelligence; ignorance is not logic; epithets are the argument of malice. On the other hand, candor is the courage of the soul. It is not argument to accuse an opponent of falsehood. Is a policeman, who applies concussion instead of discussion, an arbitrator?

A correspondent sends us a circular issued by a maker of belladonna plasters, and says:

"The writer of this circular intimates that all other makers of belladonna plasters are dishonest, indecent, disreputable, criminal, guilty of fraud, deceit and all manner of outrag ous conduct. He places all druggists and pharmacists who sell any other make or kind, save this particular brand, in the same class. He intimates that pharmacists and physicians are fools in general, but on the subject of belladonna in particular. I also call your attention to the fact that some of the words and phrases are not fit to print."

Another writes:

"Such an important subject should not be blown and tainted with malicious words. I am glad to see that Red Cross Notes discusses the same in a scientific and practical manner, and quite at variance with the literature sent out from other sources."

One of the most prominent pharmacists of this country, himself no mean authority on the subject writes:

"The experts and analysts who have recently attacked the belladonna plaster problem remind me of the adage, 'Fools rush in where angels fear to tread.'"

This from a very practical man:

"Let any candid druggist or physician go over the list of belladonna plaster makers named in the Canadian report and decide for himself which of the firms named is the sole possessor of all the

virtue and honesty in the calling. Let him choose the one who alone can read and interpret the Pharmacopeia, who has a corner in drugs, with whom as to belladonna wisdom will die. After such a choice he should classify all the rest as among the disreputables, and he will be handling the subject in accordance with many circulars that have been issued."

This is from a much esteemed authority:

"We are much pleased to note that Red Cross Notes is very temperate in tone, and is surely attempting to deal with the facts of the case. This is very agreeable to us, for we are trying to work in that spirit, and will do anything to continue the advance of scientific principles."

This is from one of the Revision Committee:

"The more I look into this controversy, the more I am struck with the absurdity of some of the claims that have been made. In the first place, the drug itself is utterly without standard; it may contain from two to fifteen per cent. of moisture to begin with, and yield an extract varying in content according to the menstruum employed. The larger the proportion of water, the larger the extract, as a rule. Then again, there is no standard for the amount of water left in the finished extract. What utter rot it is then to claim that either the Br. P. of 1885 or the U. S. P. of 1890 has established a standard for belladonna plasters based upon the alkaloidal percentage."

From another member of the Committee:

"As I look at it, the plasters reported by the expert of the Revision Committee as being up to the U. S. P. standard, and those reported by the Canadian Assayists as being up to the B. P. standard are the very ones that should have been condemned as not being made at all in accordance with these works. They contained no belladonna, no belladonna extract, and no alkaloids of belladonna. The lowest plaster on the list was nearer a pharmacopeial plaster than those placed the highest."

This is from probably the best authority upon alkaloidal drugs in the land:

"The large quantity of alkaloid in a plaster is not a factor to be considered in a remedial agency. An over-strength preparation is as much to be condemned as one that is under strength. In the case of a powerful narcotic poison like belladonna, the danger is much greater if it be above the standard than if it be below; it is very easy to make a plaster which shall be above the strength of others, and to do so at a very low price; for instance, one may use Scopolia, which is a fraudulent belladonna now largely sold on the market in some sections as an adulterant of true belladonna. A high alkaloidal test can be gained with or without any belladonna whatever being used in making the plaster. The alkaloidal strength of a belladonna plaster can be easily increased to a very high percentage by using either spurious drugs, or artificially using alkaloids. There is no authority to show in any of the reports that the alkaloids were the alkaloids of belladonna. It is very easy to put into a plaster other alkaloids that will react with the chemical re-agents. So far as weight or alkametrics are concerned, all these experts have taken it for granted that the alkaloid found in the blunderingly-marked belladonna plaster must be the alkaloid of belladonna; but not one of them seems to have made any attempt to prove it. I can make a plaster out of quinine that would show a higher test than any on the list. Thus the "expert" reports so far received are worse than useless."

"I am greatly pleased with Johnson's Belladonna Plaster. I find it gives quicker and better effect than any other I have hitherto used."—Dr. D. H. Agnew, University of Pennsylvania.

DANGEROUS BELLADONNA PLASTERS.

In the *Medical Bulletin* for August and in Red Cross Notes No. 12, attention was directed to the dangerous natures of belladonna plasters made up of extracts of poisonous drugs other than belladonna, and especially those stuffed with active alkaloids in order to make a good showing upon assay. Quite a number of cases of poisonous symptoms following the application of belladonna plasters have been recorded in the medical press; the one which follows is of interest just at this time in showing that danger and even death may lurk in belladonna plasters which are made "high test" for use in expert's reports.

A Case of Poisoning by a Belladonna Plaster.

BY ERNEST E. MADDOX.

From Am. J. M. Sc., Phila., 1893, n. s. cvi. 572-574

Miss P, aged 30 years. Her complaint was that on rising one morning she found a mist over her vision, and found that she could not read unless she held the book at a good distance. This was on Monday; during the week the symptoms were ameliorated by taking a dose of Gregory's mixture, but returned, and she consulted me on the following Tuesday. She looked flushed, and her eyes had an unnatural brightness; the pupils were not larger than they often are in one who, like herself, has myopia.

* * * * *

In conclusion, it may be said that the plaster was found to be made by one of those firms who pride themselves on the excellency of their belladonna plasters, and who exhibit the results of tests to show how much more belladonna they contain than the official plasters. The case recorded shows there is a limit to excellency of this kind, and that there is need for caution not to carry it too far.

The following is a brief bibliography of poisoning by belladonna plaster:

Case of poisoning by the application of belladonna plaster to the skin. Jenner (W.), Med. Times and Gaz., London, 1856, N. S., xiii, 513.
Poisoning from belladonna plaster. Lyman (G. H.), Extr. Rec. Bost. Soc. M. Improve., 1859, iii, 51; also Bost. M. & S. J., 1856-7, lv, 451.
Intoxication par un emplatre d'extraitede belladonna, bons effets de l'opium. Perrond, Gaz. Méd. de Lyon. 1860, xii, 285-287.
An infant poisoned by the use of a belladonna plaster on the mother's breast. Goodwin (R. S.), Med. & Surg Reporter, Phila., 1871, xxiv, 346.
Case of belladonna poisoning resulting from the application of a belladonna plaster. Fleming (M. J.), Med. Rec. N. Y., 1884, xxv, 68.
A case of poisoning from a belladonna plaster. Judd (H.), J. Am. M. Ass., Chicago, 1884, ii, 122.
Accidents toxiques survenus á la suite de l'application d'un emplatre belladonné. Desrosiers (H. E.), Union Med. du Canada, Montreal, 1886, xv, 13.
Notes on a case of belladonna poisoning from a belladonna plaster. Ryle (R. J.), Guy's Hosp. Gaz., Lond., 1889, N. S., iii, 152.
Poisoning by a belladonna plaster. Griffiths (P. R.), Brit. M. J., Lond., 1891, i, 1067.
Dangerous poisoning from absorption from a belladonna plaster. Walker (T. J.), Brit. M. J., Lond., 1891, ii, 1146.
Poisoning: belladonna porous plaster. Taylor (H. L.), Cincin. Lancet Clinic, 1892, N. S., xxviii, 433.
A case of poisoning by a belladonna plaster. Maddox (E. E.), Am. J. M. Sc., Phila., 1893, N. S., cvi, 572-574.
Toxic symptoms produced by a belladonna plaster. Lym. (W. G.), Edinb. Hosp Rep., 1894, ii, 639.
Belladonna poisoning from application of emplastrum belladonnæ. Clendinnen (F. J.), Austral. M. J., Melbourne, 1894, N. S., xvi, 446.
Rapid supervention of symptoms of poisoning following the application of a belladonna plaster. Howath (W. J.), Lancet, Lond., 1894, i, 204.
Belladonna poisoning without dilitation of the pupils, caused by belladonna plaster. Montgomery (D. W.), Med. News, N. Y., 1896, lxviii, 101-103.

Here is a copy of an order received at a drug store in Bombay;

> Please supply 4 ozs. of the undermentioned compound—
>
> C H NO
>
> $52{\cdot}65 + 5{\cdot}25 + 42{\cdot}10 = 100$

What was wanted?

To Remove the Odor of Iodoform from the Hands.—For this purpose Bienert recommends (Pharm. Zeitschr. Russl.) washing the hands once or twice with flaxseed meal in water. He states that the odor very quickly disappears.—*Duetsche Med. Zeitung.*

PRESERVATION OF IODOFORM GAUZE.

A recent order has been made by the Stathalterei of Bohemia. Manufacturers and pharmacists are compelled to enclose iodoform gauze in a covering impermeable to air, preferably in glass, in order to prevent loss of iodoform by evaporation in the air. Further, it is suggested that they should regularly estimate the active constituent and mark the results upon the label.

SCOPOLIA CARNOLIOCA.

The Scopolia plant has figured prominently in the belladonna plaster controversy. The rhizoma of this plant, it is stated, is used in certain quarters as the source of extract from which to make belladonna plasters. The reason for the sustitution of Scopolia for genuine belladonna is a commercial one; it gives a much larger percentage of extract than genuine belladonna root; and the extract of Scopolia, when tested with the re-agents used by chemists, shows a higher percentage of alkaloid than does that from belladonna. The user of Scopolia thus has the advantage of a cheap drug, a larger yield of extract and a high showing on assay. But Scopolia Carnolioca is not belladonna, and contains no atropia; in fact, it is a drug rejected as worthless by the makers of atropine. The alkaloids found in Scopolia are a mixture of scopolamine and hyoscyamine; the substitution of higher priced drugs for those that are cheaper, claiming therefore the warrant "just as good," is thus condemned by an eminent therapeutist:

"It is alleged that some pharmacists are in the habit of dispensing, for genuine belladonna plaster, a preparation which contains no extract of belladonna, either leaves or root, but which is made with extract of stramonium, or of duboisia, or of hyoscyamus, or of Scopolia, or some other member of the mydriatic alkaloid-bearing group of solanaceous plants. I think such a course is ethically and scientifically indefensible."

HOT SPRINGS, ARK., Oct. 2, 1896.

Messrs. Johnson & Johnson, New Brunswick, N. J.

Gentlemen—I have a good word to say in favor of J. & J.'s "Red Cross First Aid to Wheelmen."

Some time ago, in company with a friend—will call him Jim—I was making a tour of Arkansas. We came to the summit of a steep hill. We were riding bicycles—that is, at the top of the hill. At the bottom the bicycles were riding us. Some way I managed to keep on top about half the time. "Friend" Jim suggested that we coast down. Result: two punctures—one in my front tire, and one in the front part of my skull. We were three miles from water, ten miles from arnica, fifteen miles from whiskey and the Lord only knows how far from a doctor. Jim dolefully examined puncture in my tire. He—Jim—escaped unhurt. Informed me that air was escaping from tire. Informed Jim that blood was escaping from puncture in my head. Jim calmly imparted information that puncture in my head would grow up. Puncture in tire would not. Remembered having a packet of J. & J.'s "Red Cross First Aid to Wheelmen" in his tool-box. Produced it and calmly proceeded to wrap puncture in bicycle tire. I suggested my head as being the proper place to apply the adhesive plaster. Jim remonstrated. I insisted. Finally convinced him that puncture in my head was of more importance than puncture in tire. Both belonged to me, and thought I had the privilege of deciding. In two hours I was feeling well enough to proceed. Friend Jim placed a small bit of chewing gum on tire puncture, pumped up the tire and calmly informed me that, in order to proceed, it would be necessary to tear myself away from the adhesive plaster on my head; tire was entitled to plaster half the time. The discussion was getting warm when another bicyclist came up the trail and gave us enough tire tape to repair puncture on bike. Kindly permit me to suggest that you place double the amount of adhesive plaster in your Red Cross Packet. This will be sufficient to repair punctures in tires and heads. I would not be without J. & J.'s "Red Cross First Aid to Wheelmen" while wheeling. Respectfully, P. L. HEALY.

Anciently belladonna was called the herb of the witches.

SOME BEGINNINGS

It is not always easy to exactly fix the dates or beginnings of discoveries. Almost every great advance bears the imprint of many hands, and it is difficult to say just at what point it began. The history of the microbe is no exception to this rule. Beginning in the middle of the seventeenth century, two centuries of investigation have been necessary to attain our present knowledge. From the days of the Dutch scientist, with a magnifying glass revealing a microscopic world, down to our present brilliant experiments, what a story of severe toil, struggle and tedious trial. In reviewing the history of these micro-organisms, we cannot fail to note that incidently these labors were greatly stimulated and aided by the long controversy upon spontaneous generation. Pasteur finally proved that no development of life would occur in organic liquids when the liquids were sterilized and guarded against the entrance of living organisms from without. This was the end of "heterogenesis" and the beginning of bacteriology.

Again we find that the discussion of the processes of fermentation and putrefaction led the workers through the labyrinth of spontaneous decomposition, Kaalysis and oxygenation on to the relationship of micro-organisms to these phenomena, all of which were instrumental in improving methods of research and became the starting points of bacteriological technique.

A few important dates in the history of the microbe may be tabulated.

1675—Leeunhoeck, the "Father of Microscopy," observed some of the larger forms of life now classed as bacteria.
1773—Muller attempted to classify certain microscopic organisms.
1776—Spallanzani partially succeeded in showing the spontaneous generation of micro-organisms in organic liquids was not true.
1836—Donne observed micro-organisms in pus.
1838-41—Ehrenberg and Dujardin placed these organisms among infusoria.
1839—Schwan demonstrated the relation of the yeast plant to the fermentation of saccharin in liquids.
1849-50—Observation of micro-organism (Anthrax bacillus) in the blood of animals dying from anthrax, Pollender-Davaine.
1852-53—Perty and Robin noted certain reproductive bodies in micro-organisms (spores?)
1853—Robin (and Davaine 1859) succeeded in classifying bacteria as one-celled vegetable organisms, differing essentially from infusoria, which are one-celled animal micro-organisms.
1854—Use of cotton air filter, Schroder. Sterilization of culture fluids by heat, Pasteur.
1863—Innoculation experiments with anthrax bacillus, establishing relation of the bacillus to this specific disease.
1865—Pasteur identified spores as reproductive bodies.
1873—Discovery of the Spirillum of relapsing fever.
1877—Use of analines as staining agents, Weigert.
1879—Gonococcus, Neisser. Baccillus of Typhoid fever, Eberth.
1880—Pasteur's researches on fowl cholera.
1880—Micrococcus pneumonia cropousi, Sternberg.
1881—Introduction of solid culture media, Koch.
1882—Tubercle bacillus, Koch. Researches of Pasteur upon Royet. Baccillus of glanders, Loffler.
1884—Comma bacillus of Cholera, Koch. Diphtheria bacillus, Loffler. Micro-organisms of pus defined, Roserben. Bacillus of tetanus, Nicolair.

EXHIBIT OF LANTERN SLIDES.

At the last meeting of the South Dakota Pharmaceutical Association, one of the features of the entertainment program was the exhibition of a series of lantern slides, which were accompanied by a lecture of explanation by H. P. Pettigrew, of Sioux Falls, South Dakota. A considerable number of the slides were loaned by Johnson & Johnson for this purpose, and included a bird's eye view of the laboratories at New Brunswick, N. J., and Highland Park; a representation of the belladonna plant, showing blossoms and fruit, as well as a portion of the root; (it was explained that in the grounds surrounding the laboratories of Johnson & Johnson, which were shown, there are several medicinal plants growing, including the belladonna plant.) Views of plaster-spreading machinery and cotton boilers were also shown, as well as views of the processes of rendering cotton absorbent. There was also thrown upon the screen a portrait of Lord Lister, the apostle of modern surgery. Seven views of wound-infecting bacteria from the experimental laboratories of Johnson & Johnson were exhibited. These views were accompanied by slides showing the methods of cultivating bacteria and making sterilization tests. Several views of the steam formaldehyde chambers in actual use were shown and the processes of sterilization explained by the lecturer.

Other views shown were the methods of hand-disinfection used by the operatives in these laboratories before entering their rooms to handle dressings; slides showing the rules governing the operations of Asepsis in these laboratories; views of the aseptic rooms with the operatives at work, and a portrait of Mr. R. W. Johnson, president of Johnson & Johnson.

Reports of the meeting show that the views were greatly appreciated, and the thanks of the association were extended to the lecturer and the laboratory for the loan of the views. The members in attendance considered that it was a source of valuable instruction upon the production of surgical products.

WHO WILL WIN THIS FIVE HUNDRED DOLLARS?

FIVE HUNDRED DOLLARS REWARD FOR A BELLADONNA PLASTER TEST.

10 RED CROSS NOTES.

$500.00 For a Belladonna Plaster Test

It has come to our knowledge that certain manufacturers have placed upon the market Belladonna Plasters which are made to show a high test for alkaloids, but which it is openly stated are not made of Belladonna, but of other drugs. (See Proceedings A. P. A., 1890, page 155, also *American Journal of Pharmacy*, April 1898, page 182). We are also in possession of facts that tend to show that Plasters made strictly in accordance with the Pharmacopœa, containing a proper portion of extract of Belladonna, from the laboratories of the most reputable pharmacists in the world, such as Allen & Son, London, E. R. Squibb & Sons, Parke, Davis & Co., Lloyd Bros., Cincinnati, are condemned by certain assayists as being below the Pharmacopœal standard.

We are also aware that Belladonna Plasters containing little or no Belladonna, but stuffed with alkaloids for show assay, are accepted as conforming to the Pharmacopœa. We are also aware of the many difficulties and the lack of uniformity in the chemical assay of Belladonna Plasters, especially in Rubber Compound. (A recent published report of an assay by several analysts shows a variation of several hundred per cent. as applied to the same sample of Belladonna Plaster.)

In view of the uncertainty and unreliability of chemical tests commonly applied to Belladonna Plasters, and in view of the fact that they are of little value to the druggist or physician, who is unable to verify or disprove them, we are led to make the following offer:

We will pay Five Hundred Dollars for the best process of testing Belladonna Plasters, adapted to the use of the druggist and physician possessed of ordinary intelligence and facilities, which will show:

1. Whether a given sample of Belladonna Plaster is made of Belladonna, or is compounded from some other drug or drugs, or is filled with mydriatic alkaloids for assay or other purposes.

2. Whether or not a given sample of Belladonna Plaster conforms to the Pharmacopœal requirements.

In other words a process which will enable any buyer or prescriber to judge of the reliability of the Belladonna Plasters on the market.

Further details and information as to this award will be made upon application. The award will be made by a committee of Pharmaceutical and Medical Authorities to be hereafter named.

Johnson's Belladonna Plaster is made of Belladonna, it conforms in strength of drug to the United States Pharmacopœa.

We are desirous of securing a process that can easily be applied and that will convince buyers and prescribers of Belladonna Plasters of the accuracy of this statement.

JOHNSON & JOHNSON
New Brunswick, N. J.

The five hundred dollars reward for a test for belladonna plasters, which is offered in view of the following facts, will be awarded upon the general principles here enumerated:

The United States Dispensatory, seventeenth edition, states that "machine spread belladonna plasters can be found in the market, which are admitted by the representative of the manufacturer to contain no extract of belladonna whatever."

The proceedings of the American Pharmaceutical Association, 1890, states that in the preparation of these belladonna plasters, one manufacturer has adopted another drug in the place of belladonna. In the *American Journal of Pharmacy*, April, 1898, it is stated that "belladonna plasters are often admittedly prepared from an extract of the rhizoma of scopolia carnolioca, and in such cases are not belladonna plasters, strictly speaking."

Dr. F. Woodbury, in Red Cross Notes No. 12, calls attention to the fact that belladonna plasters are often made of extract of dandelion, extract of jimson weed, etc.

Chemical assay processes, as now used, are misleading, in that their conclusions are based solely on a report of the alkaloidal content. It has been demonstrated that a plaster can be made that will show a very high assay by these processes, and yet not contain any extract of belladonna or atropia. What is desired is a test that will show:

1. Whether belladonna plasters, such as are now on the market in rubber combination, contain belladonna extract.

2. Whether they contain belladonna extract in the proportions required by the Pharmacopeia.

3. Whether alkaloids have been added to the plaster over and above the amount properly belonging to the belladonna used therein.

4. If other alkaloids have been added the test should show the nature and proportion of such addition.

5. The test must be one that can be applied by any physician or pharmacist with the facilities ordinarily at hand. For example, by a person who is competent to make and has the facilities to make an examination of urine, or pathological tissues, or can identify and test ordinary drugs and chemicals.

6. The test must furnish evidence more or less conclusive that a given belladonna plaster has or has not been made of the drug prescribed by the Pharmacopeia, and is therefore a reliable preparation.

7. As the great bulk of the plasters now in the market are made with an India rubber mass, this test must be particularly applicable to this class of plasters.

The contest for this award will remain open until January 1st, 1899, (and may be further extended).

Upon request, samples of plasters will be sent for practical application of the proposed process.

Contestants should submit their processes without their signature, but with an assumed mark or name. It is also suggested that they submit with the manuscript a report showing the application of the process to the sample sent, and to brands of plasters found in the market.

The manuscript, giving details of the proposed process, must be submitted to Johnson & Johnson, and must not be published by the author until after the award has been made.

Each proposed process as received will be tried in the laboratories of Johnson & Johnson, and submitted to disinterested parties for trial, the results noted and attached to the author's manuscript.

The final award will be made by a committee of pharmacists, physicians and chemists, after submitting each proposed process to such trial as they may deem advisable.

Johnson & Johnson will reserve the right to reject any or all processes submitted, and return the manuscript to the writer.

The process receiving the final award will become the property of Johnson & Johnson; the author's name will, however, be attached to the same in publication. The process receiving the final award, as well as others deemed meritorious, will be submitted to the Committee of Revision of the United States Pharmacopeia.

LICENSE WANTED TO ACT AS A GOOD SAMARITAN.

Messrs. Johnson & Johnson:

Gentlemen—Having heard from a friend that you are manufacturing emergency cases for bicyclists, etc., I would be pleased to have you send me a price list on the cases and list of their contents, and inform me as to whether I would have to get a certificate to practice on injured in case of emergencies, and where to apply to obtain such, as I am willing to pass examination on this subject.

Awaiting an early reply, I am,

Very respectfully,

ALEXANDER KANN,

Care Star Extract Works, 192 Fulton St., N. Y.

In reply to the foregoing the following was sent:

Mr. A. Kann, New York City:

Dear Sir—We have your favor of the 23rd.; contents noted. Regarding your using our emergency package upon injured bicyclists, would state that the only certificate necessary for you to practice in such cases would be that of the "Good Samaritan."

Yours very truly,

JOHNSON & JOHNSON.
Per Lewis.

That the correspondent was not up in Scripture is evident from the following:

NEW YORK, August 30, 1898.

Messrs. Johnson & Johnson:

Gents.—I am in receipt of your favor of the 24th inst. You probably forgot to inform me the price of your emergency package and where I can get them in New York. I would also *be thankful for the address of the office of the Good Samaritan where I can get a certificate.* Being thankful for the information given, I am,

Most respectfully,

ALEXANDER KANN,
410 E. 17th St.

This was sent in reply:

Mr. Alexander Kann, New York City:

Dear Sir—In response to your favor of the 30th inst., regarding the emergency package for wheelmen, would state that you can procure same from any reputable druggist of your city. If not in stock, they will gladly secure from the jobbers.

With reference to the address of the "Office of the Good Samaritan, &c.," we would refer you to the Parable of the Good Samaritan, in the Gospel according to St. Luke, tenth chapter, beginning at the 25th verse and ending with the commission, "Go thou and do likewise."

Yours very truly,

JOHNSON & JOHNSON,
Per Lewis.

This is the sum of the whole matter:

It is an act of both Christian and pagan charity to render aid to one's neighbor in distress. It is far better for the sufferer if such aid is rendered so intelligently that it may be effectual for good. No license, diploma or certificate is required—all that is necessary is to carry a first aid packet in the pocket, keep cool, follow directions—"Go thou and do likewise."

Belladonna in Picture

A. Stamen.

B. Corolla lobes, spread open showing insertion of stamens.

C. Calyx with slightly exserted style.

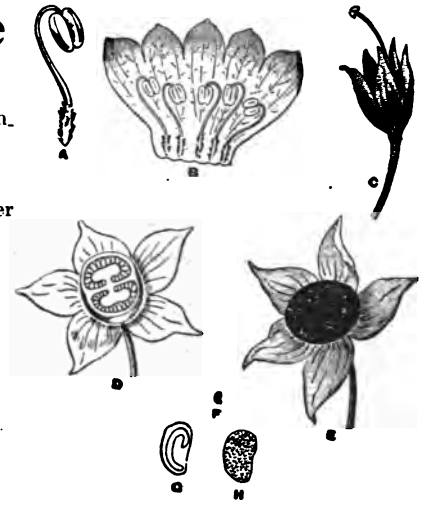
D. Calyx adherent to berry. The latter cut showing the seeds.

E. Berry and adherent calyx.

G. Seed cut showing curved embryo.

H. Seed, externally fitted.

F. Seed, two-thirds natural size.

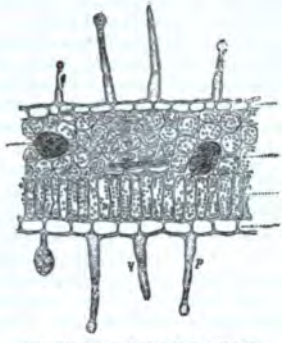


BELLADONNA FLOWER AND SEED.

BELLADONNA, FLOWERING SPECIMEN AND ROOT.

Belladonna in Picture

MAP OF EUROPE.—SHADED PORTION SHOWS HABITAT AND PRINCIPAL SOURCE OF THE WORLD'S SUPPLY OF BELLADONNA

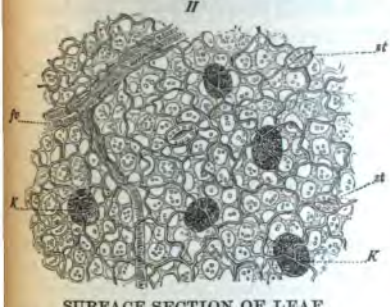


CROSS SECTION OF LEAF.

HORN-LIKE BELLADONNA ROOT—CROSS SECTION

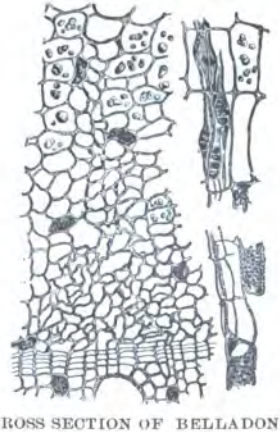
WOODY BELLADONNA—CROSS SECTION

MEALY BELLADONNA—CROSS SECTION



SURFACE SECTION OF LEAF

st. Stoma.
fo. Fibro-vascular bundle (spiral vessels)
k. Cells containing crystals.



CROSS SECTION OF BELLADONNA ROOT

A STOOP TO BLUNDER, OR THE MISTAKES OF AN EXPERT.

The Committee of Revision of the United States Pharmacopeia recently employed an expert to examine into the subject of porous plasters. A partial account of his labors has been given, under the title of "On the Assay of Belladonna Plasters, and the Alkaloidal Strength of the Belladonna Plasters of the Market," by Carl E. Smith, in the *American Journal of Pharmacy* for April, 1898.

Notwithstanding the fact that, as it stands, the Pharmacopeial formula for belladonna plaster is a relic of the dark ages, or that a belladonna plaster made with the concoction of lead and resin prescribed by the Pharmacopeia would in these days be both unsalable and therapeutically useless, no effort was made toward improvement; he was content to try a hand at the examination of a few India rubber mass plasters, and the results of the whole work may be summed up as a series of mistakes.

The report recites that in the course of his travels the expert came to the factory of one particular maker of plasters, and from this place obtained some samples and material to make for himself a type of what, in his opinion, a Pharmacopeial plaster should be.

Either from the receipt of wrong information or from the lack of a copy of the Pharmacopeia, he was led into compounding a mass entirely out of proportion with that work.

Here is the text of the Pharmacopeia:

EMPLASTRUM BELLADONNÆ.

BELLADONNA PLASTER.

Alcoholic Extract of Belladonna, *two hundred grammes*	200 Gm.
Resin Plaster, *four hundred grammes*	400 Gm.
Soap Plaster, *four hundred grammes*	400 Gm.
To make *one thousand grammes*	1000 Gm.

Melt the Plasters on a water-bath; then add the Extract of Belladonna, and continue the heat, stirring constantly, until a homogeneous mass results.

Any one that can read will readily see that this formula of the Pharmacopeia calls for the use of 20 per cent. of alcoholic extract of belladonna to be mixed with 80 per cent. of the plaster mass. The expert, according to his own statement, made a mass that was to be used as a type of the United States Pharmacopeia Plaster by using 33⅓ per cent. of extract and 66⅔ per cent. of plaster mass. Thus he committed an error of using 12⅓ per cent. more extract than the book called for. He then assayed his mass, mistake and all, and the result he used as "standard."

In making this mistake, he was led into a peculiar position. If he had made another plaster from the same batch of extract, and had made it with exact proportions set by the Pharmacopeia, and then compared it with his first attempt, he would have been compelled to condemn his own (but true) Pharmacopeial plaster as "below standard."

The expert then went on, blunderingly confusing the solid extract of belladonna leaf, which is plainly specified by the Pharmacopeia, with that of the solid extract of the root, which is not mentioned in the book. He went out of his way in an attempt to commend and endorse a certain make of belladonna plaster, which he admits "were not belladonna plasters," and contained neither belladonna, nor belladonna extract, nor belladonna alkaloid; but he tried to prove that they were made of "something just as good."

Finally this expert evolved an assay process for plasters and he examined some plasters by his newly evolved process and compared them with his own blunderingly-made standard, and reported that some of them were "below," and that some were "above"; just what such an "above" and "below" may have meant it is hard to say; not the United States Pharmacopeia, certainly; for if one reads the work he will find that the United States Pharmacopeia prescribes no alkaloidal standard for belladonna plasters. The expert's type of plaster was made in utter disregard or in ignorance of the United States Pharmacopeia; so

that above or below in this instance means nothing.

It seems remarkable that mistakes so glaring should have been committed and published under the stamp of such an authority. It is humiliating to think of one who uses the name of highest Pharmacopeial talent of our land, confusing drugs, disregarding the Pharmacopeia, using different proportion of drugs than is called for by the text; finally making comparison with a type preparation 70 per cent. out of true.

Compare this with the work of Messrs. Reynolds and Caspari, as reported in the last number of Red Cross Notes, when they undertook to answer the question "What is a Standard Belladonna Plaster U. S. P.?"

Mr. Reynolds went into the market and purchased one pound of the extract of belladonna leaf from five of the best known makers; this was examined macroscopically and assayed; plasters were then made from each lot of extract by taking one part of the extract and mixing it with five parts of the plaster mass containing India rubber; this gave them a belladonna plaster made with an India rubber mass, but in exact accordance with the United States Pharmacopeia as to the proportion of drug. (This is something that the expert did not make; he made "something else just as good" for his purpose.)

Upon assay of these Pharmacopeial standard belladonna plasters, Prof. Chas. Caspari found them to contain from 0.174 to 0.301 per cent. alkaloid in the mass, or on an average 0.232 per cent. alkaloid. Thus was established the fact that a belladonna plaster made in accordance with the United States Pharmacopeia from extract of belladonna obtained from five of the best makers in this country would contain 20 per cent. of extract of belladonna, with an average alkaloidal content of 0.232. This established scientifically the alkaloidal measure of the belladonna plaster from the standpoint of the United States Pharmacopeia, a thing which the committee's expert attempted to do, but from which he went woefully astray.

When this expert, in the name of the Committee of Revision, entered the arena of porous plasters he fell into a series of blunders. Worse than all, a manufacturer of plasters took the results, blunders and all, garbled them to suit his needs and sent them forth with "war extra" head lines:

COMMITTEE'S REPORT

Blank's Belladonna Plasters The Only Standard.

ALL OTHERS ARE FRAUDS.

Thus it has come about that the representative standard bearers of American pharmacy have been made to furnish advertising copy and to become endorsers of porous plasters.

It is astounding that one purporting to represent the standard bearers of American pharmacy should mistake, ignore and misrepresent the bible of pharmacy, and one is amazed that the name of this committee should be used to elevate the wares of one manufacturer and malign his competitors. As the reports stand, the name and the authority of the Pharmacopeia is used to bolster up Jones' plasters, and the almost reverenced princes of pharmacy find their names trailing in the mud and slime.

BELLADONNA IDIOSYNCRASIES.

Prof. G. Walter Barr says: When dealing with a drug idiosyncrasy we may be in the presence of some minor effect greatly magnified by the supersensitive cells; and it follows that an alkaloid or glucoside which is usually practically inert may become of great importance. This complicates the matter in belladonna idiosyncrasy for there are a number of substances in the crude drug and its preparations besides the dominant atropine. Belladonnine may after all be identical with hyoscyamine; the latter is always present in greater or less quantity, and has a dynamic action of its own. The chemists have done very unsatisfactory work upon belladonna, and even after its constituents are determined beyond dispute, the dynamic action of each must be worked out in turn; for there is no relation between chemical composition and physiological action.

FINDINGS OF THE JURY.

In the controversy now going on in the pharmaceutical and medical journals and by the way of circulars, which load the mails in re Belladonna Plasters, the final court of appeals, who will decide as to the merits of the case, are the physicians who prescribe, the pharmacists who dispense and the patients who apply belladonna plasters. Fortunately they are intelligent, experienced and painstaking observers, far more competent to decide upon the value of any drug or medicine than many of the so-called "analysts" or "experts" who have figured so prominently in this controversy. Such of these eminent jurists as have followed the subject, and have been able to read between the lines, as well as to discern what was upon the surface, have formulated their conclusions as follows:

1. That no information of any value to the dispenser or prescriber is to be found in the report of the Canadian authorities or the expert of the Committee of Revision; a high figure or a low mark in these reports is not an index of the commercial or therapeutic value of the brand.

2. That Bulletin No. 58, issued by the Canadian Goverment, purporting to be an examination of belladonna plasters, shows that their analysts are either very incompetent or greviously lacking in a knowledge of belladonna and its preparations.

3. That Bulletin No. 58, issued by the Inland Revenue Department of the Government of Canada, is a misrepresentation of the belladonna plasters found in the Canadian markets.

4. That the statement in Bulletin No. 58 that belladonna plasters made by Johnson & Johnson are not in conformity to the Br. Pharmacopeia of 1885 or the U. S. P. of 1890 is untrue.

5. That the statement in Bulletin No. 58 that Johnson's Belladonna Plasters contain no alkaloids of belladonna is absolutely false.

6. That belladonna plasters are sold in the market which are "not belladonna plasters" but are made of jimson weed, duboisia, extract of dandelion and other uncertain and poisonous drugs unknown in a true Pharmacopeial belladonna plaster.

7. That there are belladonna plasters sold in the market which are unprofitable for the dispenser, prejudicial to the reputation of the prescriber and dangerous to the unhappy victim who applies them.

8. That belladonna plasters which are made of "something else" may show a high figure in assay and yet contain no trace of belladonna.

9. That the report published by Mr. Carl E. Smith, under the name of Research Committee D, Committee of Revision of the U. S. P., contains errors so glaring and so numerous as to be unworthy of acceptance by any intelligent pharmacist or physician.

10. That this report, issued under the guise of the Committee of Revision of the U. S. P., shows utter ignorance of or an intentional disregard of the text of the Pharmacopeia.

11. That the reported assay of belladonna plasters by Mr. Carl E. Smith is a gross misrepresentation of the plasters in the American market.

12. That the figures of Mr. Smith, purporting to represent the amount of alkaloid present in the belladonna plasters obtained from five of the leading American makers, are incorrect and untrue.

13. That the statement by Mr. Smith that only one brand of belladonna plasters found in the American market conforms to the U. S. P., is untrue.

14. That the implied inference *that* Johnson's Belladonna Plasters are *below* the U. S. P. standard is absolutely false.

15. That the attempt of a certain plaster-maker to use the name of the Government of Canada and the honorable Revision Committee of the United States Pharmacopeia as endorsers of his wares to the injury of honorable and reputable competitors was unwarranted, uncommercial and unprofessional.

16. That the nearest approach to the scientific measure of the Belladonna Plasters U. S. P. was established by the work of Messrs. Reynolds and Caspari at the solicitation of Johnson & Johnson.

17. That Johnson's Belladonna Plaster is made of belladonna, and contains the full equivalent of that drug and its constituents and is in full and regular conformity to the requirements of the U. S. P. Revision of 1890.

RUBBER PRICES.

It is possible that many of our readers have thought that the recent numerous advances in all kinds of rubber goods were due principally to a desire on the part of manufacturers and jobbers to squeeze to the utmost the retailers. Whatever sins these men may have to answer for, this is not one of them. The fact is, the demand for crude rubber has so enormously increased, while the supply has been so limited that the price has been constantly advancing for over a year. In the case of some kinds of rubber it advanced from July, 1897, to July, 1898, sixty-two per cent. Nor is this all, for the end has not come yet, and it is probable that prices will in the future be higher even than they are now.—*Spatula.*

SAN FRANCISCO, CAL., September 15, 1898.

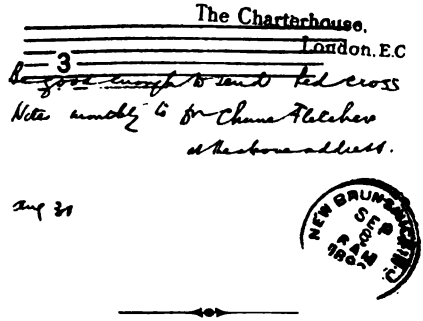
Messrs. Johnson & Johnson:

Dear Sirs—I would be pleased to receive your publication, Red Cross Notes. The copy I have seen is very good. May it always give the satisfaction the J. & J. dressings have given me.

Yours respectfully,

ERNEST S. PILLSBURY,
1837 Scott Street.

STEPS IN AN ANGLO-AMERICAN ALLIANCE.

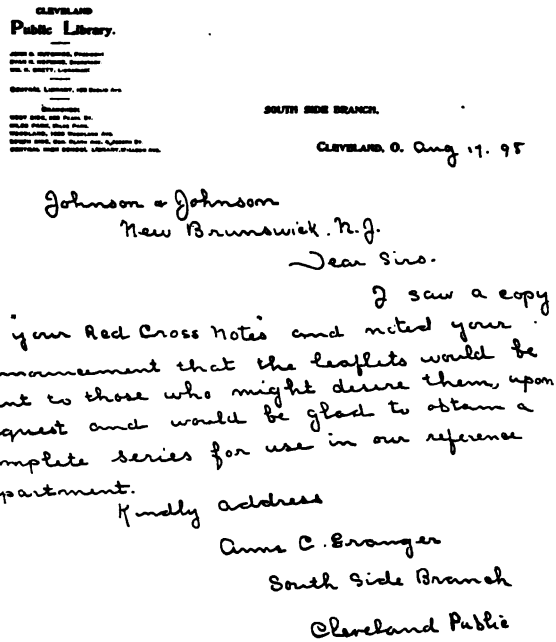


CHEMIST'S SUPPLIES.

Modern surgery has set the world agape by the wonderful results that it has accomplished. Almost each succeeding day, or, at least, week, brings forth some new marvel of scientific discovery, more extraordinary in its effect than the last. Perhaps the X-ray has been as potent a means to an end as any that has yet been placed at the surgeon's disposal, and great things have been done with its aid, as all the civilized world is aware. The manufacture of supplies used in modern surgery is also making vast strides and great improvement—indeed it has to, if it would keep up with the times. The up-to-date surgeon wants the newest appliances to assist him in furthering his undertakings, and will have no other.

The name of Johnson & Johnson is known everywhere that surgery is practiced as manufacturers of the finest goods in their line. Their antiseptic dressings, absorbent cottons, plasters, salves and bandages have a universal reputation for general excellence. It may not be known to the majority of people, that the plant of this concern is situated in New Brunswick. Twenty-five buildings constitute the factories and over 500 hands find occupation here. The establishment is furnished with all that is modern in machinery, and is equipped with the very best facilities for carrying on such extensive undertakings as the firm's large business calls for. The New York office is at No. 100 William street. The company's officers are R. W. Johnson, president; J. W. Johnson, secretary-treasurer. It is now twelve years since its organization and incorporation under the laws of the State of New Jersey with a capital of a quarter of a million and a surplus of $200,000. Their Red Cross trade mark is familiar everywhere. Johnson & Johnson is considered everywhere as synonymous for all that is implied by scientific, alert and skillful as applied to business qualifications.—*The U. S. Financial and Mercantile Examiner*

VALUABLE FOR REFERENCE.



CLEVELAND
Public Library.

SOUTH SIDE BRANCH.

CLEVELAND, O. Aug 17. 98

Johnson & Johnson
New Brunswick. N.J.

Dear Sirs.

I saw a copy of your Red Cross Notes and noted your announcement that the booklets would be sent to those who might desire them upon request and would be glad to obtain a complete series for use in our reference department.

Kindly address

Anna C. Granger
South Side Branch
Cleveland Public
Library

I have much pleasure in saying that your belladonna plaster has given me much satisfaction.

J. M. WELSH,
851 Fayette Street,
Baltimore, Md.

Chas. Bauer, M. D., 929 N. Seventh St., Philadelphia, Pa.—I like your emplast. belladonna very much. I have lately used in two cases of fractured rib.

MERIDIAN, MISS.,
Oct. 13, 1898.

Messrs. Johnson & Johnson:

Dear Sirs—We are keeping and have been keeping your belladonna plasters for some time. And I take liberty in saying they are second to none on market.

Very respectfully,
J. W. HOLMES, M. D.,
Prop. Meridian Pharmacy.

F. W. E. STEDEM,
Pharmaceutical Chemist,
Broad St. & Fairmount Ave.,
PHILADELPHIA, PA., September 22, 1898.

Messrs. Johnson & Johnson:

Dear Friends—I write you with reference to your general letter of September 13, on the question of belladonna plasters. Now, while I will be glad to receive the little booklet, Red Cross Notes, I wish to assure you that as far as I myself am concerned (and I am sure I voice the sentiments of many others), no such evidence was or is necessary. I think the only justification you need is the goods themselves. I am quite sure they can stand the shock of attack from any other house in existence. Such methods as those recently resorted to always fall short of the intention in mind. It will reflect back on them and do the very opposite of the thing they desire. I am pleased to assure you that most physicians in my neighborhood specify J. & J.

Very truly,
F. W. E. STEDEM.

Here's another good antiseptic idea. Get clean and keep clean for the sake of all concerned.—*The Alkaloidal Clinic.*

FRANK L. GROTHE, PH. G.,
Pharmacist,
Spring and Abigail Sts.,
CINCINNATI, OHIO, Oct. 14, 1898.

Johnson & Johnson, New Brunswick, N. J.

For several years past I have sold J. & J.'s Belladonna Plasters and your other products; I can candidly state they have given satisfaction both to the profession and the laity. My customers call again and ask particularly for Johnson's, a fact which gives me confidence to recommend Johnson's Belladonna. May the good work go on.

Yours sincerely,
FRANK LOUIS GROTHE.

PERFECT SATISFACTION

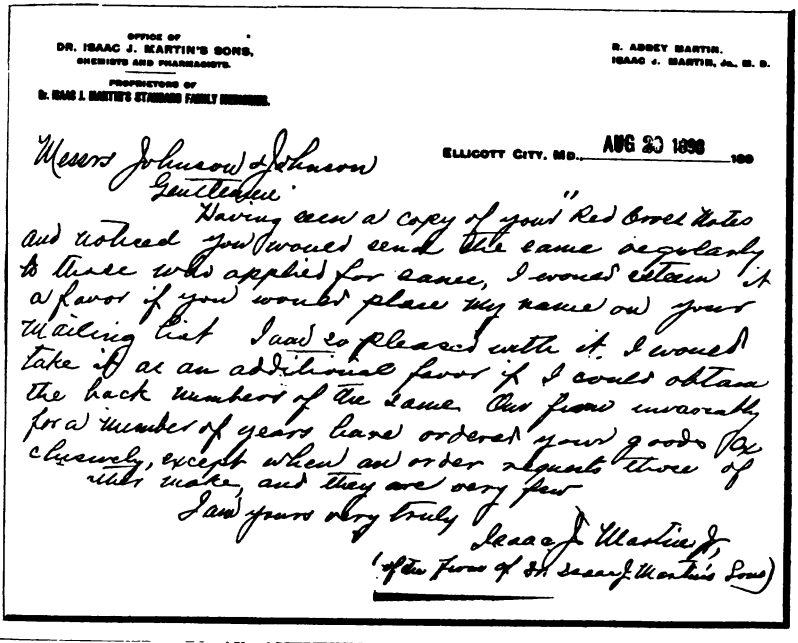
D. D. MCDOUGALL, M. D., M. E.,
Professor of Electro-Therapeutics,
Hygeia Medical College, Cincinnati, Ohio.
Professor of Electro-Gynecology,
National College of Electro-Therapeutics,
Indianapolis, Indiana.

CONNERSVILLE, IND., August 17, 1898

I enjoy reading Red Cross Notes. I always employ J. & J. surgical supplies and absorbent cotton with perfect satisfaction.

D. D. MCDOUGALL.

EXCLUSIVELY.



OFFICE OF
DR. ISAAC J. MARTIN'S SONS,
CHEMISTS AND PHARMACISTS.

PROPRIETORS OF
DR. ISAAC J. MARTIN'S STANDARD FAMILY REMEDIES.

R. ABBEY MARTIN.
ISAAC J. MARTIN, JR., M. D.

Messrs Johnson & Johnson
Gentlemen:

ELLICOTT CITY, MD., AUG 20 1898

Having seen a copy of your "Red Cross Notes" and noticed you would send the same regularly to those who applied for same, I would esteem it a favor if you would please my name on your mailing list. I am so pleased with it I would take it as an additional favor if I could obtain the back numbers of the same. Our firm invariably for a number of years have ordered your goods exclusively, except when an order requests those of other make, and they are very few.

I am yours very truly
Isaac J. Martin Jr.
(of the firm of Dr. Isaac J. Martin's Sons)

FROM "THOSE IN AUTHORITY."

Office of Secretary of N. C. Board of Pharmacy.
Raleigh, N. C. Sept 17th 98.

Gentlemen.
Your favor of 13th inst to hand and contents noted. The "Red Cross Notes" is always a "welcome visitor" at this office. Very Respectfully
W. Simpson Sec.

RED CROSS NOTES.—Of all the journals of its class that come to our tables (and their name is legion), none has a more uniformly striking and taking appearance. It is always handsomely printed on excellent paper, and, what is more to the point, never fails to contain matters of interest both to doctor and druggist. It is published by Johnson & Johnson, New Brunswick, N. J., and will be sent gratis to anyone who will take the trouble to send for it.—*National Druggist*, St. Louis, Mo.

E. R. GATCHEL, Druggist,
Cor. 10th and Spring Garden Sts.
PHILADELPHIA, Oct. 4, 1898.

Johnson & Johnson:

Dear Sirs—I have read your notes on belladonna plaster with a great deal of interest, and would like to receive your Red Cross Notes regularly. (I have also read *other tales* on the same subject.)

As I have had the pleasure of seeing you make belladonna plaster and gauzes, I know all you say is correct, and, as a druggist of thirty years' experience, will say that J. & J. Belladonna Plaster gives better satisfaction than any that I ever have handled.

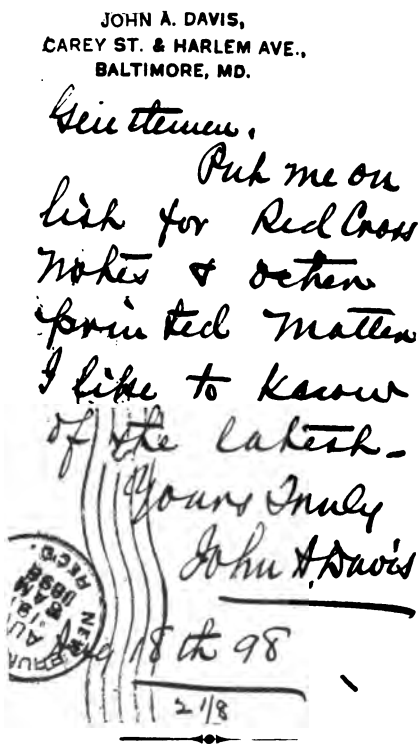
Respectfully yours,
E. R. GATCHEL.

THE S. S. WHITE DENTAL MF'G. CO.'S FACTORY,
PRINCE'S BAY, S. I., N. Y., September 24, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Your several pamphlets on asepsis and your catalogue received. I shall read them with interest and profit. I cannot, however, delay expressing my admiration of the beauty of the "get up" of the books and my thanks to you for sending them

Yours, A K. JOHNSTONE.


JOHN A. DAVIS,
CAREY ST. & HARLEM AVE.,
BALTIMORE, MD.

Gentlemen,
Put me on
list for Red Cross
Notes & other
printed matter
I like to know
of the latest.
Yours truly
John A. Davis
Aug 18th 98
2 1/8

MEMPHIS, TENN., August 23, 1898.

Messrs. Johnson & Johnson:

The Red Cross Notes received, for which I am much obliged; will be glad to have it at any time.

Your belladonna plasters I find most excellent indeed, for many things, in particular one case relieving the nausea of pregnancy.

Respectfully yours,
DR. J. C. UNDERWOOD.

COLUMBUS, OHIO, September 23, 1898.

Messrs. Johnson & Johnson.:

My Dear Sirs—I hope you will pardon me for troubling you in this way, but I thought perhaps you might like to know how these people are making a great effort to imitate you in every way. I have always been pleased with the results when using your preparations on account of your extreme care in making your preparations perfectly antiseptic, and I am sorry to see these people so thoroughly unprincipled.

If you have anything new and especially good in aseptic surgical dressings, I would be pleased to receive samples.

Yours very truly,
J. MOSELEY KERR, M. D.,
219 E. Long Street.

THINGS WELL DONE.

The booklet on asepsis (issued by Johnson & Johnson) has an attractive cover and the little bit of color supplied by the red cross on the solid black background makes it quite effective. The treatise on the art of asepsis and the description of the preparation of the material used in surgery are written in a way to interest medical men and others engaged in the delicate and important work of dressing wounds. The impression conveyed is one of thoroughness, and the reader, be he a professional man or merely a disinterested layman, can find much to instruct as well as interest him in the book. —*Art In Advertising.*

CINCINNATI HOSPITAL,
CINCINNATI, OHIO, September 24, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Will you kindly furnish the Cincinnati Hospital Library with series one of Red Cross Notes for binding and preservation and send the same regularly?

Respectfully.
P. ALFRED MARCHAND.

THE SANITARIUM,
EVANSVILLE, IND., September 3, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Yours of recent date upon the subject of aseptic towels received. Have also received sample towel, which meets with my warmest approval. I have already taken pleasure in showing this sample to a number of my friends who happened in. They all catch on and say they will order. I do not see how the ordinary practitioner, especially the one who pretends to do surgery, can get along without such an article. You prepare nearly everything for them so their work has been made easy up to the question of towels, and now that you have put that within their reach, I feel that the ordinary practitioner of surgery can go in the country, or the dirtiest of city tenements and do pretty fair surgery.

Sincerely,
A. M. OWEN.

HARRISBURG, PA., September 20, 1898.

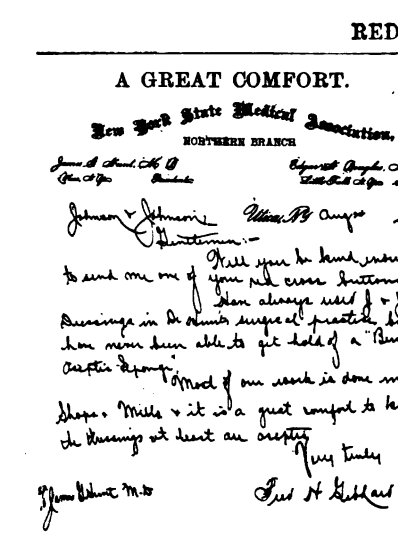
Messrs. Johnson & Johnson:

Gentlemen—Circulars received, with special reference to emp. belladonna. I understand the idea, as I have received tables of per cent. of bellad. ext. But for myself, where I sell any of J. & J.'s goods, I know they are all right, and push them. Am sorry that I am unable to purchase more than I have done heretofore.

Thanking you kindly for Red Cross Notes, which I appreciate, I remain,

Respectfully,
DR. C. M. FAGEN.

A GREAT COMFORT.



WICHITA, KAN., September 16, 1898.

Messrs. Johnson & Johnson:

I received a letter forwarded to me from Iola. I have recently changed my location and will be pleased to receive literature at my present address. I have used dressings bearing stamp of Johnson & Johnson and find them all that could be asked. Reasoning from this, I conclude that your other preparations must be of same standard. Will be pleased to receive samples of Papoid and any other preparations you may be pleased to send.

Hoping to hear from you soon, I am,

Very truly,

DR. A. D. JONES,
921 So. Topeka Ave.

IRA D. HOPKINS, M. D.,
51 Blandina St.

UTICA, N. Y., September 1, 1898.

Messrs. Johnson & Johnson:

Gentlemen—If my memory is correct, about a year since, I said in a letter that I would be pleased to receive Red Cross Notes regularly. In the notes you say something like the above written on a postal card would secure every issue of Red Cross Notes. I do not use a postal card very often, and that may be the reason why I have received only three or four copies. I thought I would try a letter again and if that did not bring it, I would get a postal card and write the request on it. There are many fine things in the Red Cross Notes, equal to your goods, which are equal or better than any on the market. I would be very much pleased to receive regularly every issue of the Red Cross Notes.

Yours truly,

IRA D. HOPKINS.

ONE HUNDRED OPERATIONS—EXCELLENT RESULTS.

CHICAGO, Sept 25, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Kindly send me a sample of Dr. Blech's Compound Surgical Powder which I heard spoken of by a fellow practitioner. I have used your dressings, gauzes, bandages and ligatures (Red Cross) in over one hundred minor and capital operations, and the excellent results achieved caused me to try anything in antiseptics you may manufacture. The way you prepare, sterilize and pack your gauze is so scientific and in accord with the latest principles of asepsis and antisepsis that no resterilization is necessary. Yours respectfully,

DR. M. F. BAILEY, M. D.,
1327 Masonic Temple.

JUST AS GOOD—NOT AS GOOD.

Messrs. Johnson & Johnson:

Gentlemen—I have received at different times for several years your literature on the products of your manufactory, and will say that I've been a persistent patron of your antiseptic goods for many years. I must say that I can't afford to risk my surgical work with other antiseptic preparations than yours, for I've always had the best results with your pure dressings. There are none better than your absorbent cotton, sterilized gauze, ligatures, sponges and adhesive plasters—I use them all and none other. The "Red Cross" brand protects us—as well as your firm—for I've been imposed on several times when sending to a drug store for J. & J. goods. "Just as good" don't suit me—for the Red Cross goods have no "just as good" nor superior in my mind.

Being a staunch trial friend of your goods for many years, I am glad of the opportunity to express my sentiments.

F. O. CLEMMER, M. D.,
Indianapolis, Ind.

DR. JOHN A. HAWKINS,
Penn Building.

PITTSBURG, PA., September 13, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Kindly send me samples of Red Cross Ligatures or sutures, also small samples of gauzes marked so as to distinguish different grades. Do you consider dry sterilized gauzes as efficient as the moist?

Have been putting up my own surgical dressings and ligatures, owing to bad results from "stock" articles bought at certain shops, but find it rather inconvenient.

Very truly yours,

JOHN A. HAWKINS.

SERVICEABLE.

Messrs Johnson & Johnson
Let me thank you
for your package
Containing a Stericon
Towel. The plan of
putting up is a good
one and must be
serviceable
I pack my boy with
towels that Stericon when
I operate outside the
hospital
Truly
Henry A Marcy
Aug 31/98.

W. V. KINGSBURY, M. D.
1301-1302 Chemical Building,
Eighth and Olive Sts.

ST. LOUIS, MO., September 9, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Please send me Notes on Catheters and Bougies. If the Kingstone instruments are as good as the other articles your house puts out, I can answer that in my opinion there can be none better.

Yours very truly,
W. V. KINGSBURY.

Office of
G. COLBURN CLEMENT, M. D.

HAVERHILL, MASS., September 12, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Your Red Cross Notes, which from time to time, you have kindly sent, are always a source of interest. Am I, like your goods, "too fresh" in asking for a set? I wish to place them in the Hale Hospital, our local institution, where I know they will be instructive.

Very truly yours,
G. COLBURN CLEMENT.

DR. S. E. WOODS, Druggist.

JACKSON, MO., September 17, 1898.

Messrs. Johnson & Johnson:

Dear Sirs—I enclose you a circular letter which I received, and as I have *always* prescribed your belladonna plaster (and other goods), I would like to know whether the analyses given are correct or not, as it shows your belladonna plaster up in a bad light.

I can say I have found your belladonna plaster active and they have never disappointed.

Yours very truly,
S. ELLIOTT WOODS.

DR. WHITING,
Office 1132,
Masonic Temple,

CHICAGO, ILL., August 25, 1898.

Messrs. Johnson & Johnson:

Dear Sirs—I have received your Red Cross Notes. I have used your absorbent cotton for the last twelve years. I have now on hand 20 packages. I use large quantities weekly.

I have a patient—and in fact several—on whom I have placed your belladonna plasters and they report they are greatly benefitted. I shall continue to use them, as I consider they are the best plasters in the market; work quick and give better relief than any I have ever used.

Yours most respectfully.
T. H. WHITING, M. D.

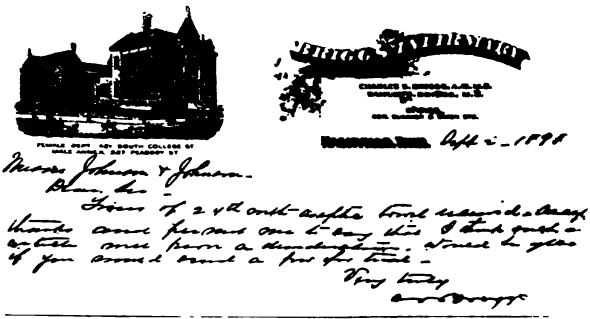
MOST RELIABLE.

Office of ... DOCTORS GLASIER

Oct 3 98

Johnson & Johnson
New Brunswick N.J.
Your literature on Peford
came to hand and I looked
an ounce and am using it
with great satisfaction.
In fact I have found all
of your goods most reliable
and I shall continue to order
them
Please put my name
on your regular Mailing list
for Red Cross Notes and
very much oblige
Yours truly
H. H. Glasier

A DESIDERATUM.



JOY IN RED CROSS NOTES.

AMERICUS, Ga., Aug. 3, 1898.

Dear Sirs—I enjoy reading Red Cross Notes and would be glad to receive them regularly. Yours truly,

E. L. MURRAY.
319 Lamar Street.

SOUTH BETHLEHEM, PA., August 25, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I wish to acknowledge the receipt of Red Cross Notes, etc., for which accept my thanks. I found them very interesting reading.

Yours respectfully,
O. D. SWOYER.

PERFECTLY SATISFACTORY.

CHICAGO, Sept. 20, 1898.

Gentlemen—I received the last number of Red Cross Notes which is very interesting. I have used your antiseptic dressings, ligatures, etc., and in all cases have found them perfectly satisfactory. I learn that you prepare Dr. Blech's Compound Surgical Powder for surgical dressing. I should be pleased to have you forward me a sample of the same.

Very respectfully,

R. W. CARTER,
1910 State Street.

ST. LOUIS, MO., August 27, 1898.

Messrs. Johnson & Johnson:

Gentlemen—I always use your surgical materials and plasters and find them absolutely reliable. Be sure and send me your Red Cross Notes regularly and oblige.

Yours very truly,
EUGENE F. HAUCK, M. D.,
1638 S. Jefferson Ave.

GOOD WORK.

HOLYOKE, MASS., September 1, 1898.

Messrs. Johnson & Johnson:

Gentlemen—Will you kindly send me the back numbers of Red Cross Notes and place my name on the list of subscribers. Will cheerfully pay the cost upon receipt of bill. We have a Red Cross organization in this city which is doing very good work. We use your supplies in our work and get away with quite a little of it in course of a year. I enclose a little book which we published and gave away throughout the mills and shops to the mechanics. We distributed about 2500 and intend to issue the same thing in the surrounding towns during the coming season.

Very truly yours,
WILLIS D. BALLARD.

WHEELMEN'S FIRST AID.

Gentlemen—I am greatly pleased to acknowledge receipt of a few numbers of Red Cross Notes and a valued sample of your new preparation Red Cross First Aid to Wheelmen. With this preparation it is possible to fix up an elbow or knee wound, between the heats of a race—we don't have to go looking in one place for a bandage, another for pins, and another for something else, but we have everything at our fingers' end in a nice compact form which can be placed in a small place in our traveling trunk. I can honestly say that this Red Cross First Aid to Wheelmen fills the bill exactly. We are getting ready to go to the National Meet at Indianapolis next week and we have our trunk stocked with nothing but those goods stamped with the J. & J. Red Cross. Thanking you for your sample, I remain,

Yours most respectfully,
JOHN J. MAHONEY,
Professional Trainer.

A copy of Red Cross Notes, published by Johnson & Johnson, of belladonna plaster fame, is at hand. It is published presumably for physicians, hospitals, etc., and contains a host of medical information. It is mailed free to those interested.—*Distributor.*

Marchan (1784) applied belladonna in diseases of the eye.

No other save Johnson's Beliadonna Plaster has ever received such emphatic endorsement for uniformity of strength, pronounced effects and superiority over all others.

H. J. LAMAR & SONS. T. A. CHEATHAM.

Lamar, Cheatham & Co.,

Prescription Druggists.

MULBERRY AND THIRD STREETS.

Macon, Ga. 187

Messrs Johnson & Johnson.
New York

Gentlemen

So long as you maintain the present high standard of your goods I propose to advise them, regardless of the published results of others.

Very Truly,
J. H. Cheatham
of Lamar Cheatham & Co.

Mr. Edward Figeer, Bates House Pharmacy, Indianapolis, Ind.—"I believe Johnson's Belladonna Plasters to be manufactured strictly in accordance with the U. S. Pharmacopeia. I have always found them to be perfectly reliable and I believe them to be the best belladonna plasters on the market to-day."

Mr. Durham, of Stephens & Durham, Munsey, Ind., says: "I believe that Johnson's Belladonna Plasters are all that the makers claim for them."

The medical department of the United States Army began in 1789 by the appointment of a surgeon with four mates.

M. F. Carnes puts a label like this on everything he dispenses:

I hereby guarantee the quality of this medicine regarding purity and accuracy of preparation, and as being strictly in accord with the Physician's Prescription.

SHAKE WELL BEFORE USING.

No. Date, Oct 5/98

Directions:

Dr.

M. F. CARNES, Pharmacist.
565 Roland Ave., Baltimore.

M. F. Carnes says: "I have sold Johnson's Belladonna Plasters for years, and recommend them above all others, because they have given satisfaction in every case."

Doyen, of Paris, has performed vaginal hysterotomy in four minutes.

Philada Oct 11th 1887

Messrs Johnson & Johnson.
Gents

I received your Red Cross Notes the other day and was much pleased with the remarks upon Belladonna Plasters, let me say, that I have been selling the different makes of Plasters since 1861 & have been buying your Plasters from Mr Brancombe ever since he has been with you, and I have to receive as yet the first complaint about them efficiency

Yours Respectfully
W. C. Walter
6844 N 13th St
Philada

BOSTON MEDICAL
FEB 18 1899
LIBRARY.

SERIES TWO
NUMBER FIVE

RED CROSS NOTES

INTERESTING ITEMS

False and Unscientific Assays of Belladonna Plasters; Canadian Analysts Arraigned . . 1-7
Irregular Physicians' Supply Houses 8
Uses of Lintine 10
Gleanings in Asepsis 14
Aseptic Bibliography 15

JOHNSON & JOHNSON, NEW BRUNSWICK, N. J.

"The First Pickings of the New Crop."

OFFICE OF

EURE, GREGORY & CO.

NORFOLK, VA., Oct 17th 1898

Messrs Johnson & Johnson
New Brunswick N.J.

Dear Sirs,

We beg to notify you that in accordance with your instructions, we have just purchased for your account 600 Bales more of the new crop cotton, making 1,600 Bales purchased for you since August or about 800,000 pounds. This lot of 1,600 Bales has been very carefully selected and is the best Upland cotton grown, being extra clean and white.

Kindly send shipping instructions for the last purchase, and oblige,

Yours Truly
Eure, Gregory & Co.

We have secured 800,000 pounds of select cotton from the 1898 crop which will soon be made into JOHNSON'S ABSORBENT COTTON. We shall sterilize it, then it will be fit to lay on a wound.

IT COSTS NO MORE THAN THE COMMON KIND.

JOHNSON & JOHNSON, NEW BRUNSWICK, N. J.

RED CROSS NOTES

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SERIES II, No. 5. NEW BRUNSWICK, N. J. 1899.

CANADIAN ANALYSTS ARRAIGNED

Misleading, False and Unscientific Assays of Belladonna Plasters

THE DOMINION GOVERNMENT TO TAKE ACTION

Following their action in the matter of the misleading assays of belladonna plasters by the expert sailing under the name of the Revision Committee of the U. S. P., Messrs. Johnson & Johnson have placed in the hands of the Government of the Dominion of Canada proofs of the incompetency of their analysts, together with a showing as to the utter worthlessness of their recent Bulletin upon belladonna plasters.

The presentation is shown in part as follows:

TO THE HONORABLE, THE MINISTER OF INLAND REVENUE, OTTAWA, CANADA:

On or about the 16th of June, 1898, a Bulletin, numbered 58, was issued from the Inland Revenue Department of the Government of Canada, purporting to be an examination of belladonna plasters and giving a tabulated statement of the analysis of samples of belladonna plasters collected within the Dominion of Canada, supposed to be made by the various manufacturers whose names appear opposite a given number.

Among the names of the makers so given appears that of Johnson & Johnson, who believe that this Bulletin is a misrepresentation of their products, and, since in this publication great injustice has been done them, they beg leave to submit the following facts:

That the samples reported upon in Bulletin No. 58 were collected early in January, 1898, and that the Bulletin makes comparisons with the standard of the British Pharmacopeia of 1898, which at that date was not published. Such a comparison seems unscientific and misleading.

The Bulletin further makes a comparison of these plasters with a supposed standard given in the British Pharmacopeia of 1885. This we deem a great error, as the British Pharmacopeia of 1885 prescribes no alkaloidal strength for belladonna plasters or for the alcoholic extract of belladonna directed to be used therein.

We further submit that all the samples save one were of American manufacture, and that these should have been compared with the U. S. P. It is a well known fact that the U. S. P. is recognized by the Government of the Dominion of Canada as a standard equal in effect to the Br. P. That, as a matter of fact, preparations made according to the U. S. P. are in quite general use in Canada as equivalent to those of the Br. P. As to the U. S. P. standard, we submit copies of Red Cross Notes, Nos. 3 and 4, wherein the standard of the U. S. P. for belladonna plasters is commented upon by the highest

American authorities, and it is also shown that Johnson & Johnson's Belladonna Plasters conform to the U. S. P.

We therefore claim that the statements and comparisons of the Chief Analyst, Mr. McFarlane, are based upon erroneous deductions, and therefore unjust and misleading.

We further claim that the tabulated statement, purporting to be the results of the examination of 48 samples, is filled with errors and inaccuracies, a few examples of which are given herewith:

VARIATION OF CANADIAN ANALYSTS.

SAMPLE	EDWARDS	HARRISON
18619	trace	0.120
18622	.00	0.090
18625	.00	.100
18620	.153	.320
18618	.010	.085
	VALADE	KENRICK
18219	.073	.120

These variations of from ten to over ten times one hundred per cent. on identical samples seems to be evidence of the grossest inaccuracy, either in the method employed or of the analyst, and stamps the whole report as misleading and unworthy of acceptance or publication.

A further error is shown in the statements made by the analysts that the alkaloids found in these plasters were identified as atropia. It is well known that belladonna contains several other alkaloids besides atropia. It is also well known that at least eight of the samples examined were those of a manufacturer who has openly stated that his plasters are made up with a drug known as Scopolia, and that plasters made from this drug surely contained no atropine; consequently it was a gross error to identify atropia in a plaster which contained none whatever. In fact it would seem to be an error to place a plaster containing neither belladonna, belladonna extract nor atropine in the same class as belladonna plasters made from the true belladonna.

The lack of familiarity of several of the analysts with belladonna plasters is shown in the following occurrence:

A jar of alcoholic extract of belladonna, Br. P., was procured from each of the following firms: Kerry Watson & Co., Lyman Knox & Co., and Evans, Son & Co., Montreal; these were combined with plain unmedicated plaster base in the proportions prescribed by the Br. Pharmacopeia. The plasters thus made corresponded in strength of belladonna to the Br. Pharmacopeia. The plasters were numbered respectively 2216-2217-2218. Identical samples were sent to Dr. John Baker Edwards, W. H. Ellis and Dr. F. X. Valade, official analysts for the government who gave their report (shown in detail in documents herewith) in substance as follows:

BELLADONNA PLASTERS, BR P. (1885.)

Made from alcoholic extract of belladonna purchased in Montreal, Canada.

SAMPLE NO.	ANALYST	Total Alkaloids Found	Alkaloids Identified as	ANALYST'S OPINION
2216	Edwards	0.4120	Atropia	"A little short of the Br. Pharmacopeia.
	Valade	0.1875	Atropine	"Below the standard of the Br. Pharmacopeia.
	Ellis	0.8800	Atropine	"Above standard
2217	Edwards	0.3630	Atropine	"Below the standard of the Br. Pharmacopeia.
	Valade	0.2525	Atropine	"Below the standard fixed by the Pharmacopeia
	Ellis	0.2800	Atropine	
2218	Edwards	0.4850	Atropine	"Equal to requirements Br. P., 1898.
		0.2542	Atropine	"Below the standard fixed by the Pharmacopeia
	Ellis	0.9600	Atropine	

On sample No. 2218, one analyst states that it is equal to the requirements of the British Pharmacopeia, while the others state that it is below the requirements. The unreliability of the work of your analysts is clearly shown in the above table, and especially upon sample 2216.

SAMPLE NO. 2216.

Valade	Edwards	Ellis
0.1875	0.4120	0.8800
Below standard.	A little short of standard.	Above standard.

Still greater evidence of lack of knowledge and inability of the government analysts to make a proper examination of belladonna plasters is shown in the following:

We caused an imitation of a belladonna plaster to be compounded from extract of dandelion and the alkaloid of atropia, with no belladonna or belladonna extract. This plaster was numbered 2156, and identical samples were sent to three government analysts. Messrs. Edwards, Valade and Ellis who reported as follows:

DANDELION PLASTERS.

Extract Dandelion and Atropine.

SAMPLE No.	ANALYST.	Total Alkaloids Found.	Alkaloids Identified.	ANALYST'S OPINION.
2156	Valade	0.3178	Atropine	"Up to the standard fixed by the Br. Pharmacopeia.
	Edwards	0.4250	Atropine	"Fairly to standard fixed by the Pharmacopeia.
	Ellis	0.2000	Atropine	

It will be observed that although this plaster contained no belladonna or belladonna extract, the analysts classed it as a belladonna plaster, and two of them believed it up to the standard of the British Pharmacopeia.

About the same time we caused a plaster to be made containing no belladonna, no belladonna extract, no atropine or other alkaloids from belladonna; this plaster was made up of extract of dandelion with hyoscyamine (from hyoscyamus) and numbered 2157, and was likewise submitted to three of the Dominion analysts. They reported as follows:

DANDELION PLASTERS.

(Made of extract taraxacum and hyoscyamine.)

SAMPLE No.	ANALYST.	Total of Belladonna Alkaloids	Identified as	ANALYST'S OPINION.
2157	Edwards	0.5380	Atropia	Over the standard of the British Pharmacopeia.
	Valade	0.2736	Atropia	Below the standard of the British Pharmacopeia.
	Ellis	0.3700	Atropine	

In this report there is not only a marked discrepancy in the amount of alkaloids found, but all analysts report as having found atropia in a compound where none was present. One of the analysts certifies that a plaster made up without belladonna, belladonna extract, alkaloid or atropia is above the standard of the British Pharmacopeia.

We also call attention to the fact that a maker of plasters has issued Bulletin No. 58 in the Dominion of Canada and elsewhere as an official endorsement of his particular make and in condemnation of other reputable manufacturers. We incidentally note that this same maker has likewise used the name of a high authority in the United States for the same purpose.

In this latter instance, not only were grave errors shown, but likewise strong evidence of collusion between the analyst and manufacturer.

In Bulletin No. 58 this maker of belladonna plasters is given higher figures than those of other makers. To test the validity of this report, we caused a sample

CANADIAN ANALYSTS CONDEMN BR. P. PLASTERS

Ottawa, October 27th, 1898

I, F X Valade, Public Analyst for the District of Kingston, hereby certify that I received from Dr D McDonald a sample of Belladonna Plaster marked 2217, and I have analysed the same and declare it to contain as follows:

Percentage of total alkaloids - 0.2525
Identified alkaloids - Atropine

I am of opinion that this sample is below the standard fixed by the British Pharmacopoeia

F. X. Valade M.D.
Public analyst

Montreal, Oct 28th. 1898.

Messrs Gilmour Bros. & Co
Montreal.

Dear Sirs:-

I hereby certify that I have carefully, and personally analysed the sample of Belladonna Plaster submitted to me by you, as manufactured by Messrs Johnson & Johnson, New Brunswick, N. J. U.S.A and numbered 2217, and I find as the result of my analysis that it contains 0.343% of Belladonna Alkaloids identified as Atropin.

This Plaster I consider below the standard of the British Pharmacopoea

I am, gentlemen,

Your obedient servant,

Robt Edwards Ph. D. D.C. P.C.

Official Analyst for Dominion Government, &
Prof. of Chemistry Bishop's Coll. Montreal.

Ottawa, October 27th, 1898

I, F X Valade, Public Analyst for the District of Kingston hereby certify that I have received from Dr D McDonald a sample of Belladonna Plaster marked 2218, and I have analysed the same and declare it to contain as follows:

Percentage of total alkaloids - 0.2642
Identified alkaloids - Atropine.

I am of opinion that this samples is below the standard fixed by the British Pharmacopoeia.

F. X. Valade M.D.
Public analyst

Montreal, Oct 29th. 1898.

Messrs Gilmour Bros. & Co.
Montreal.,

Gentlemen:-

I hereby certify that I have carefully, and personally analysed the sample of Belladonna Plaster submitted to me by you, as manufactured by Messrs Johnson & Johnson, New Brunswick, N. J. U.S.A. and numbered 2218, and I find as the result of my analysis that it contains 0.486% of Belladonna Alkaloids identified as Atropin.

I am, gentlemen,

Your obedient servant

Robt Edwards Ph. D. D.C. P.C.

Official Analyst for Dominion Government, &
Prof. of Chemistry Bishop's Coll. Montreal

P. S I consider this fully equal to the requirements of the British Pharmacopoea 1898.

DANDELION PLASTERS ARE STANDARD BR. P.

Other samples of plasters were also sent the Canadian analysts for their opinion. These samples were made up without any belladonna extract as follows:

2156

NEW BRUNSWICK, N. J., August 16, 1898.

The undersigned this day made a batch of plasters, numbered 2156, as follows:
Four pounds of plain unmedicated plaster mass (consisting of India Rubber, Burgundy Pitch, etc., see U. S. D., 17th edition, page 491) were mixed with one pound of solid extract of Dandelion to which was added a solution containing two hundred grains of Atropine (Merck), thus making a plaster containing no belladonna, extract of belladonna or other ingredients than above stated. After mixing, this mass was spread upon cloth marked with the number 2156, cut and perforated.

Sworn to and subscribed before me this seventh day of November, 1898. CHAS. A. McCORMICK, Notary Public.

FRED B. KILMER,
JOHN A. KIMBALL,
OWEN SWAIN.

CANADIAN ANALYSTS REPORT ON DANDELION PLASTERS

Ottawa October 27th 1898.

Montreal, Oct. 26th. 1898.

Messrs Gilmour Bros. & Co.
Montreal.,

Gentlemen:-

I hereby certify that I have carefully, and personally analysed the sample of Belladonna Plaster submitted to me by you as manufactured by Messrs Johnson & Johnson, New Brunswick, N. J U.S.A and numbered 2156, and I find as the result of my analysis that it contains 0.02% of Belladonna Alkaloids identified as Atropia.

This Plaster I consider fairly to standard of British Pharmacopeia

I am, gentlemen,

Your obedient servant,

Wilfrid Edwards B.S. M.D. M.R.

Official Analyst for Dominion Government, & Prof. of Chemistry Bishop's Coll. Montreal.

I F X Valade, Public Analyst for the District of Kingston, hereby certify that I received from Dr B McDonald a sample of Belladonna Plaster marked 2156, and I have analysed the same and declare it to contain as follows:

Percentage of total alkaloids = 0.3178
Identified alkaloids - Atropine

I am of opinion that this sample is practically up to the standard fixed by the British Pharmacopeia

F. X. Valade M.D.
Public analyst

PLASTERS WITHOUT BELLADONNA OR ATROPINE ARE STANDARD. ATROPINE FOUND WHERE NONE WAS PRESENT.

Other samples of plasters were submitted to the Canadian analysts. They contained neither belladonna nor atropine. They were made as follows:

2157 NEW BRUNSWICK, N. J., August 16, 1898.

The undersigned this day made a batch of plasters numbered 2157 as follows:
Sixteen ounces of plain unmedicated plaster mass (consisting of India Rubber, Burgundy Pitch, etc., (see U. S. D., 17th edition, page 491) were mixed with four ounces of solid extract of dandelion to which was added a solution of forty-five grains of Hyoscyamine (Merck from Hyoscyamus), thus making a mass containing no belladonna, extract of belladonna or atropine or other ingredients than above stated. After mixing, this mass was spread upon cloth marked with the number 2157, cut and perforated.

Subscribed and sworn to before me this seventh day of November, A. D., 1898. CHAS. A. McCORMICK, Notary Public.

FRED B. KILMER,
JOHN A. KIMBALL,
OWEN SWAIN.

ANALYSTS REPORT ON PLASTERS WITHOUT BELLADONNA OR ATROPINE

Ottawa. October 27th. 1898

I, F X Valade, Public Analyst for the District of Kingston hereby certify that I received from Dr B McDonald a sample of Belladonna Plaster marked 2157, and have analysed the same and declare it to contain as follows:

Percentage of total alkaloids = 0.2736
Identified alkaloids - Atropine

I am of opinion that this sample is below the standard fixed by the British Pharmacopeia

F. X. Valade M.D.
Public analyst

Montreal Oct 26th 1898

Messrs Gilmour Bros. & Co.
Montreal.,

Gentlemen:

I hereby certify that I have carefully, and personally analysed the sample of Belladonna Plaster submitted to me by you, as manufactured by Messrs Johnson & Johnson, New Brunswick, N J. U.S.A and numbered 2157, and I find as the result of my analysis that it contains 0.03% of Belladonna Alkaloids identified as Atropia

This Plaster I consider over the standard of the British Pharmacopeia.

I am, gentlemen,

Your obedient servant,

Wilfrid Edwards B.S. M.D. M.R.

Official Analyst for Dominion Govt and Prof of Chemistry Bishop's Coll Montreal

IRREGULAR PHYSICIANS' SUPPLY HOUSES.

The class of business houses known as Physicians' Supply Dealers is of modern origin. Some of these are very reputable houses, possessing large capital and facilities for the transaction of business, and engaging the manufacture of surgical instruments and apparatus, and conducting their business in a very creditable manner. There are others, however, constantly springing up, who are in a measure disorganizers of legitimate trade, and engage in practices not altogether commendable. Some of this latter class issue pretentious advertisements, claiming to be manufacturers of all kinds of pills, powders, instruments, chemicals, tablets, and surgical appliances in general, while, as a matter of fact, they manufacture little or nothing. They buy the cheapest goods that can be purchased, arranging to have such goods put up under their label as manufacturers; these cheap goods are then issued by them, in the place of well-known brands. In order to give some semblance to respectability, such houses often advertise themselves as agents of such firms as Wyeth & Bros., Parke Davis & Co., E. R. Squibb & Son, etc. Their customers, usually physicians, send for articles made by these well-known firms, and receive something under the supply dealer's label, with the information that this is made by the reputable manufacturer which the physician has specified, but is put up under "our" label. In these columns several instances have been noted where surgical dressings were thus substituted, sometimes with serious results. Instances are known where these supply dealers buy cheap gauze dressings in rolls of one hundred yards or more and repack them under their own label with pretentious claims as to sterilization, etc. In Red Cross Notes No. 2, a surgeon made the following statement:

"The writer knows of many an enterprising dealer who wipes his lunch table in the rear of his shop with a dirty towel, and cuts long strips of gauze and packs them in jars, bearing on the label his name, more for advertising purposes than anything else. They are so ignorant that they do not even know that gauzes thus prepared are apt to produce serious if not fatal results if used in delicate or dangerous surgery. Such men and their goods are not only wilful or ignorant humbugs, but criminals; their goods poison, produce suppuration, asepticemia and death."

Messrs. Johnson & Johnson have had considerable trouble with this class of dealers who purchase in the market cheap cotton, gauze dressings, ligatures, etc., and put them up under their own name and sell them with the claim that they are produced by Johnson & Johnson. A lively correspondence recently occurred with one of these houses, part of which is herewith appended:

Messrs. ——— ———,

Gentlemen:—Replying to your letter of the 28th, we beg to call your attention to some statements made by you to the writer, namely: That although you at one time bought large quantities of our goods, you had discontinued the purchase of same, for the reason that they did not pay a sufficient profit. That you could not successfully compete with wholesale druggists, in that your expenses were about three times those of the wholesale drug houses. That this had forced you to buy cheap goods, which would afford sufficient profit to pay the extra expenses, etc.

We may be doing you an injury, but we note upon your letter head "——— ———, Physicians' Supplies," and we therefore class you with certain houses of this kind throughout the country who claim to be manufacturers of surgical instruments, of all kinds of pills, powders, plasters, fluid extracts, solid extracts, chemicals, absorbent cotton, surgical dressings, compressed tablets, etc. These houses, selling goods under their own label, take about the same position you do, that *they cannot successfully compete with the wholesale druggists*, in that they require a much larger profit than the wholesale drug houses, and they therefore buy the cheapest goods that can be found in the market, put their own label upon them, and, to a

greater or less extent, imitate legitimate manufacturers. While this may not appear to such supply houses as substitution, yet it so appears to the manufacturers. How far the general goods in the market are imitated we do not know, but in our line it is done to a considerable extent, otherwise why do all of them put up their absorbent cotton in a blue carton, using tissue paper, in many instances blue? The same as to imitation of our packages containing gauze. If the object is not substitution, why is it done? We believe you will agree with us that if the physicians' supply companies do not substitute, they at least, unintentionally possibly, misrepresent.

In regard to their claim of being manufacturers of a large line of goods, their laboratory consists chiefly of a printing press. We do not say that this applies altogether to your house, whom we believe do manufacture a creditable line of surgical instruments, but we do know that at one time we supplied you with a large amount of goods of our make under our own label.

The large and increasing call for our make of goods from other physicians' supply houses gives us the best of reasons for believing that there is a large demand from physicians not only for our goods, but those of other manufacturers, yet we know that it is difficult—almost impossible—for them to obtain these goods from supply houses who push goods under their own label. This forces the physician to deal with houses who carry the standard goods exploited by well-known and legitimate manufacturers.

We believe it would be to the interest of physicians' supply houses to sell the goods of the various manufacturers under the maker's own name and label, and not assume any responsibility. That their business would thus largely increase, that their customers would be better satisfied, and although the profits might not be as great on small sales as of imitation goods, yet in the aggregate they amount to a great deal more. A large part of the expenses they are now obliged to endure is due to the difficulty in making sales of irregular goods. This has been thoroughly demonstrated to our satisfaction by the increased business placed with us by physicians' supply houses that only carry J. & J. products.

Yours very truly,

JOHNSON & JOHNSON.

Dictated by R. W. J.

In connection with the above, Mr. R. W. Johnson stated to a representative of Red Cross Notes that there were very many reputable houses engaged in supplying physicians with articles needed in their practice; indeed there are several large drug houses, both wholesale and retail, who have a special department devoted to this class of trade. These are legitimate concerns who never substitute or imitate and are generally very successful.

But there is another class whose practices are commercially and ethically open to criticism. For instance: Squibbs' Fluid Extract of Ergot is ordered by a physician for a special use in labor; he receives a bottle labeled "Fluid Extract Ergot; manufactured for Jones & Co., Physicians' Supply Dealers." If the physician objects he is told "this is made expressly for us by Squibb and is just the same—in fact better—than that put up under Squibbs' name."

As a matter of fact that dealer has bought the cheapest extract of ergot to be found in the market, so poor that no reputable maker would put his name on it. Likewise we find gauze, cotton, ligatures and all kinds of surgical dressings have been dealt out under these dealers' name with the statement that they were made by Johnson & Johnson "expressly for ——." They are put up to look like ours, often they are labeled "sterilized," when as a matter of fact they have never been near a sterilizer; often the maker or dealer would not know what a sterilizer was should he see one.

It is against this imitating, substituting class who trade on the merits of reputable makers that our remarks were directed. We do not ourselves sell to physicians direct, and all our surgical dressings are put up under our own name and label and bear our Red Cross trade mark. For such goods we are willing to assume all responsibility; we know that they are all that is claimed for them.

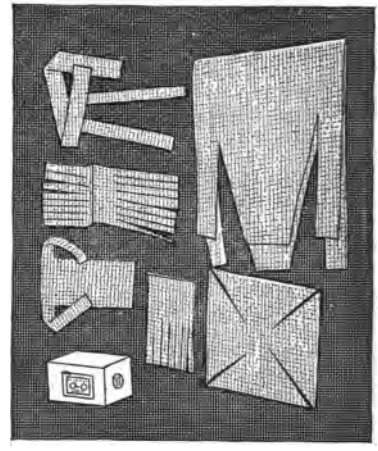
We believe every reputable dealer should taboo all name-goods, and that every physician and surgeon should demand that the name of a legitimate manufacturer of known reputation should appear upon every package that he buys.

USES OF LINTINE

The highly absorbent substance known as "Lintine" is a fabric made by felting absorbent cotton fibres into thin sheets suitable for wound-dressing and other surgical purposes. As it comes from the laboratories of Messrs. Johnson & Johnson, it is in rolls several yards in length and about eighteen inches in width. The sheets can be readily cut into bandages, tampons, pads or cushions of any desired shape or size, to suit the case. As a wound dressing, it absorbs discharges more readily than ordinary absorbent cotton or lint and is much neater and more easily handled. The uses which it has been put to are very numerous. Dr. L. B. Couch, Nyack, N. Y., suggests the following methods of using Lintine in the place of adhesive plaster for covering and closing wounds: "Cut a piece of Lintine a half-inch wide, and a half inch longer than the wound. The wound is then dabbed with iodoform collodion, and the Lintine strip laid over it. This dries quickly, and holds the edges of the wound in coaptation. The whole may then be covered with a coat of collodion and the result is a perfect and smooth antiseptic dressing. By this method one is able to discard pins and sutures in many cases. Lintine makes a smoother and firmer dressing than anything I have ever used."

It may be used to cover the patient's limbs, the bedding and tables during operation, as a substitute for towels, napkins or sheets. Lintine is easily torn or cut into any shape without waste. Small strips may be rolled into pieces or mops for throat or nose applications, also as drainage tubes, or to empty drainage tubes. Small squares may be used as handkerchiefs for consumptive, diphtheritic or cancer patients, and likewise for diaper cloths for infants. It is unsurpassed as a material for sanitary napkins.

In obstetric practice, since Lintine is perfectly sterile, it may be used not only



for napkins, but also as a bed covering. Lintine is neat, convenient and clean, and is the cheapest absorbing material available for surgery. The illustrations give an idea of some of the manifold uses to which this material is put.

Lintine is now largely used in hospitals in making cheap and convenient first dressings for wounds of various kinds and as a substitute for more expensive bandages in dressing cases, after operation. Dr. Benj. T. Shimwell, assistant Professor of Surgery in the Medico-Chirurgical Hospital of Philadelphia, in an article published in the *Medical Bulletin*, describes a number of very useful applications made extemporaneously of this comparatively inexpensive material. Dr. Shimwell says:

"Recently, a new form of absorbent cotton has been brought out, and I have used it during the last two months in my hospital and private work. It is commercially known as Lintine, and, in fact, is a felted cotton with a smooth surface, resembling the old form of lint, but with more absorbent power and is very much cheaper. It is sold at the same price as the ordinary form of absorbent cotton,

and is said to have forty times as much absorbing surface. I have found it especially effective for capillary drainage. Experience has proved that when Lintine has been applied over gauze dressing, a condition of perfect drainage existed. The discharge of pus came in contact with the whole of the gauze surface and was taken up by the Lintine, which filled the two-fold purpose of absorbing the discharge and destroying its possible microbian contents by the boric acid or other antiseptics which it contained. The compactness of this new material, while not interfering with its absorbent qualities, makes it available as an impervious dressing. This statement may seem paradoxical, still it is a fact. The use of Lintine has given good results in the treatment of that class of cases in which osseous or fibrous structures have been exposed. Such wounds must not be allowed to get dry, for a dressing which causes free evaporation of secretion from these tissues of low vitality only encourages necrosis. Surgeons sometimes, not recognizing this point, may wonder why death of tissue occurs. The medicated Lintine I have found to answer a good purpose in just such cases. The two-fold purpose of an antiseptic and impervious dressing is thus obtained with less bulk and less expenditure of material than in the ordinary methods.

"Mention has been made of the use of absorbent cotton for sponges or dabs. Here the new form has especial advantages, since the pieces can be very quickly cut of the required size and in as great a quantity as seems desirable. After being squeezed out by the hand while wet, there are no loose fibres to become detached and adhere to the wound surface. Of late, I have been using these dabs made with Lintine in all cases of abdominal operations, including work in the abdominal cavity, and found them to give perfect satisfaction, with less trouble and expense than sea sponges or gauze pads.

"As a general surgical dressing, I have found the felted cotton easy of adaptation to the surface of the body or extremities. It is smooth and soft, and by a little cutting and over-lapping it adjusts itself to irregular or convex surfaces and is retained in place by a strip of adhesive plaster, or by the ordinary roller bandage, made by cutting the Lintine into strips of the desired width and length. Over any point of discharge, a secondary or multiple dressing can be placed to take up the excess of secretion as fast as thrown out. In the case of burns or scalds, Lintine forms a good dressing either as a primary or a later application. This has been shown repeatedly in our dispensary work. Lintine, when applied directly to the injured surface, protects the parts from the air. Lintine is also easily removed, which is an important point, as it lessens pain and consequent injury to an already badly injured part.

"It may seem a small matter, but most surgeons will appreciate the advantage which Lintine possesses over ordinary absorbent cotton in the fact that when the operator's hands are wet it does not adhere to the hands like loose cotton, which interferes with neat work.

"As a drain for sinuses, I have made some experiments with Lintine by rolling it up into cylinders of the right size, between the hands, and inserting it into the sinus by gently rotating it, while pushing it in with forceps. In several patients where it was used in this way the drainage was perfect. When the abdominal

tube was employed, the same material was used as a wick with equal success.

"In cases of ecchymosis following sprains and bruises, or where a simple fomentation was required, the new cotton-lint was found an exceedingly practical application. The parts were readily enveloped and the dressing remained in place after wetting. In this way the application of any antiseptic can be easily made with a certainty of all the surface being brought into contact with the drug.

"This material seems also well adapted for some fixed dressings where lightness is an object, and where great strength is not required. The material is first cut into the shape best adapted to the part with a duplicate piece of the same size. The first is then laid upon paper or a towel and plaster of Paris is spread over its surface as thickly as desired; the second piece of Lintine is then laid upon the plaster, and the dressing is thoroughly wet with water and applied to the limb or part and moulded with the hand to the surface. More plaster can be spread on with the wet hands and a roller of Lintine applied, or successive pieces of a material in layers, to form a dressing of the proper thickness. If any other material be preferred to the plaster, such as starch or

silicates, the pattern can be made and the part simply encased in the Lintine and the substance applied. These substances infiltrate the fibres of the material and make fixation, when hard, complete.

"It would be well to describe some of the special dressings made of Lintine as used in the service and private practice. As the number of injuries of fingers and toes are out of all proportion to the rest of accidents (excepting possibly, the head), we devised two dressings, namely: First, a strap, one inch in width, was torn in the length of the Lintine, then folded over the cleansed wound of finger or toe, and fastened at the base with a strip of adhesive plaster. Then an additional piece of same width was wrapped around the circumference of the same finger, covering over the first dressing (as an ordinary roller bandage), then secured at the base with a strip of plaster. If much secretion is expected to be poured out a multiple of folds can be used prior to application of the roller of Lintine. This

has answered every purpose satisfactorily. Second, a piece of Lintine an inch longer than the finger or toe was cut about six to eight inches in length; it was then split in its center, that is, its fibres were separated, leaving the margin intact for a depth equal to the length of finger or toe. This was placed over the wounded finger or toe as a cap; the margins at each side were folded over the parts, giving a covering equal to two or three thicknesses of the Lintine, and then fastened with an adhesive strap. This is both neat and effective, surrounding the part equally, and gives plenty of absorbent antiseptic surface. We found that rubber adhesive plaster, in strips, was the best means of securing this dressing whenever applied, unless, in a few cases, a muslin roller bandage was used.

"The next form is a triangle of the foot, which makes a very neat bandage both for dry and moist dressings, as in acute cellulitis following severe contusion, contused or lacerated wounds or after operations, scalds, burns, eczema and, in fact, any condition that requires a surgical covering combined with antiseptic qualities.

"It is understood, as mentioned before, where the secretion is liable to be excessive, that a multiple of Lintine dressings are to be applied as in the use of gauze or ordinary absorbent cotton.

"This triangle is made by taking a piece of Lintine fifteen inches square (the width of the large rolls) and making a triangle. The base of this is to be applied to the plantar surface of the foot at the base of the great toe, the inner angle is folded over the instep, the outer angle over this, and the apex around the inner side of the heel and then secured with plaster: one strip over the anterior part, another over instep and under the heel.

"A very nice bandage and dressing combined is the well-known Scultetus of the leg. Strips, two inches wide and longer than the circumference of the leg are cut and then laid on an antiseptic or bichloride towel, each successive piece overlapping. The leg is then placed on these strips, which are folded over each other (angle upward) and fastened with a few strips of adhesive plaster. This gives good support to the parts, with non-tendency to slip on movements made by the patient.

"A dressing that fills every requirement of both arm and leg, with less trouble than the Scultetus bandage, is made as follows: Take a piece of Lintine sufficiently large to cover the parts, then lay it on a wet bichloride towel and gently pat it so as to absorb the moisture; then wrap it gently, yet securely over the limb. This adheres closely, soon dries and retains itself thoroughly after drying. An objection may be raised to wetting the Lintine, on the grounds of not being a dry dressing; if so, then the same objection may be made against the gauzes of the shops or that which is taken directly from the sterilizer.

"A triangle of the same size as that of the foot can be applied to the shoulder as a cap, of sufficient size to take in also the upper two-thirds of the arm. This is applicable to any condition in this region especially any tubercular state that requires operation.

"A neat dressing for the scrotum, which I have used, can be made by taking Lintine sufficiently wide and long, cutting a hole for the penis to pass through. The end is divided in its centre to near the opening for the penis, and then cut at an angle inward from the outer angles. These are applied by lapping cut parts over each other and then secured (not too tight) by adhesive plaster or held in place by a T-bandage. This would be useful after tapping for hydrocele or its radical cure by operation, the operation for varicocele, eczema, or the use of medicated solutions.

"The dressing for the mammary gland can also be applied to stumps or injuries of the head, the size to be governed by the parts. We have tried it in a number of cases for wounds of the head, some markedly infiltrated; the results have been excellent. The dressing, if made large enough, can be secured over the forehead, side, and occiput by adhesive straps, or retained by a roller bandage. In non-suppurative mastitis this makes an excellent protection to the surface, absorbing all moisture from the skin and nipple. This can be covered with common unwashed cotton and compression made as required. In the suppurative variety, this material can be used for packing as well as covering the part as first described.

"Other uses will suggest themselves to the surgeon in his work, which Lintine will be found to answer well and cheaply."

GLEANINGS IN ASEPSIS

By H. O. HALL, Washington, D. C.

NEW METHOD OF DISINFECTING THE SKIN BEFORE OPERATION.

Drs. Landerer and Kramer, surgeons to the Karl Olga Hospital in Stuttgart, describe a new method of disinfecting the skin previous to operating, in order to dostroy the bacteria of the subjacent strata. For this purpose they use a one per cent. solution of formalin in the following manner: After the usual application of soap and water, a bandage moistened with the formalin solution is put on the skin and covered with thin India rubber. After six hours the bactericidal action is obvious, and in from 12 to 36 hours absolute sterility is secured. In 60 patients treated in this way the wounds healed by primary union in all except three cases of hernia. Bacteriological examination proved that the skin was sterile in about 90 per cent. of the cases.

A NEW SURGICAL DRESSING TABLE

Has been devised by Dr. H. W. G. Macleod, of Edinburgh. It is constructed of enameled iron and runs on rubber-tired wheels. It is drained to an opening in the center and all fluids pass down a central tube into a convenient receiver which can readily be removed and emptied. It is adjustable to any height. It is practically unbreakable and well suited for field service.

ASEPTIC TREATMENT OF WOUNDS IN OPHTHALMIC SURGERY.

Dr. Hirschberg, in the Deutsche Med. Wochnschrift, reports that in 200 cataract operations he has had no case of suppuration. He prepares the patient by washing the eyelids the day before operation with neutral soap, and afterwards with boiled mercuric-chlorid solution, 1-5000. Just before operation he cleanses the conjunctival sac with the mercuric-chlorid solution, followed by sterilized normal salt-solution. The hand instruments, dressings, etc., are prepared in the usual way.

HOT OIL AS A STERILIZER.

According to the London *Hospital*, hot oil is more efficient than boiled water in sterilizing instruments. Olive oil at a temperature of 320° F., to 356° F., acts very quickly and with great power. Complete sterilization is secured by dipping the instrument for an instant into the hot oil, and in the case of syringes it is sufficient to fill them twice at the above temperature. If a thermometer is not at hand an easy method of determining the temperature is by dropping into the oil a crumb of bread which becomes brown and crisp when the right temperature is reached.

Tubal Cain was the first maker of surgical dressings. This primitive gentleman was a direct descendant of Cain, Adam's first born son.

DECALCIFIED BONES IN THE TREATMENT OF WOUNDS.

Dr. F. W. Robinson recommends the use of decalcified bones as a dressing for wounds. For this purpose he uses the most cancellous portions of the bones of an ox, thoroughly depriving them of fat, decalcifying and preserving them in a 1 in 20 solution of carbolic acid. Properly prepared the bone should be as soft as sponge, porous and pliable. He has used this dressing in many cases and feels fully justified in recommending it. He uses the bone dressing in the following manner: For open ulcers a piece of bone is shaped to fit the cavity as nearly as possible, small pieces being fitted in to fill up any deficiencies. For superficial ulcers the surface is covered with fine shavings of the bone. Fistules are packed with small pieces of the bone with the aid of a probe with a flat button-like end. The bone dressing may be used for any kind of granulating wound, and is very successful in obstinate fistulæ and callous ulcers. In no case has it caused the slightest irritation; on the contrary existing irritation is relieved by it and the temperature reduced. It brings about a healthy state of the granulations, and the discharges diminish. The dressing is gradually absorbed, melting down at the base and sides.

DOUBLE CYANIDE GAUZE (*Lister.*)

The London *Lancet*, Nov. 5, says: "We have carefully tested a specimen of gauze submitted to us, and the results were in accordance with the directions first indicated by Lord Lister for impregnating the material with the double cyanide (mercury and zinc.) When prepared with due care the application of such a gauze is unattended with mercurialism. Such is claimed to be the case, with the dressing made by this firm: (John Milne, Ladywell, London, S. E.)

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COMPOUND ANTISEPTIC FOR VAPORIZATION.

A recent issue of *Riforma Med.* gives the following:

Formaldehyd.....40 parts
Creosote (Beechwood).....10 parts
Oil Turpentine.....25 parts
Menthol.....4 parts

Twenty to thirty drops to be heated on a metal platter.

THE SLEEPING NIGHT SHADE.

Special Inauguration Thesis for the Degree of Doctor of Medicine, Presented to the Faculty of the University of Leipzig, 1776, by Petrus Joannis Andreas Daries.

[Translated from the Latin, in Johnson & Johnson's RED CROSS NOTES, No. 12, by Albert Dockhorn, registered apprentice with Haering & Co., Bloomington, Ill.]

ETYMOLOGY OF THE NAME OF THE DRUG.

To begin with the name, it will be necessary first that we harmonize about the nomenclature of the plant. That is about the derivation of the original roots of the given name of this drug. Before everything else we wish to keep by the beauty of language, a subject which is most to be considered, Atropa Belladonna *Linné*, is according to *Bauk* a solanine narcotic poison, the fruit of which resembles that of a black cherry. That the name Atropa Belladonna is a Greek one, this every one readily understands who is acquainted even to a slight degree with the rudiments of the beautiful Greek language, by hearing the name pronounced. If he does not become disgusted with the Greek letters, Στμνχνοκελανοηεσαδογγς. The drug is named Belladonna, by *Tournef, Clus, Matthioli, Tragi, Dioscorid, Raii*, Atropa, by *Royan*, Solanum furiosum, by *Camerar, Letale, Lobel, Dodon, Clusii, Thalii*. Solanum maniacum, by many women. Belladonna I. B. Solanum bacca nigri, by *Tabern*, is a black berry similar to a cherry. Solanum cosmeticum, by *Weinman, Hoffman, Opsago, Gerard*. Beautiful wife, by *Tournef*. German names—Waldnachtschatten, Schlafbeere, Gollbeere, Irrbeere, Walkenbaum, Marienkraut, Tollkraut, Tollwurtz, Tollkirschen, Schweintodt, Saukraut, Wuthbeere, Teufelsbeere, Willbeere, Wiedbeere, Windbeere. English names—Dwale, deadly raging or sleeping nightshade. French names—Morelle marine, Belledame. Italian names—Solatro maggiore, Belladonna. Belgic names—Groote Nachtshaad oft Dulcruyt, Dulle, Besien. Spanish names—Yerva mora major. Lusitanic names—Ayura, Erva, mora. Bohemian names—Lilek, Wetsy, Psy, Wino. Polish names—Pfinki, Moszenky, Pfie, Wisuie, Mickouky. Hungarian names—Zepzolo. Danish names Natskade, Sovv Boer, Swine urz.

This Belladonna with its cherry like berries possesses such a disagreeable, disgusting odor that beasts avoid it as they would a snake or mad dog. Some authorities call it cussan, because of the juice of the plant there is made with distilled water, a liquid which Italian women are using to get rid of the wrinkles in their faces and to beautify themselves, that is to make pale their dark, rosy cheeks, it is also applied in cases of frigidity. Others believe for this reason, that under the influence of the drug there are produced dreams about beautiful women and virgins. But Apuleius insists for certain that this name Belladonna was corrupted and that death and sleep-producing is the name and furious and maniac-making because it brings on all of these symptoms with it.

THE SANITARIUM,
ABRAHAM M. OWEN. M. D.,
EDWIN WALKER, M. D.,

EVANSVILLE, IND., Sept. 14, 1898.

Messrs. Johnson & Johnson, New Brunswick, N. J.:

GENTLEMEN—I want to tell you, as I have before, that your ligatures are the only ones that have given us universal satisfaction. About a year ago we prepared a large quantity of ligatures after the Senn method with formaline 2 per cent., though all the washing we could do did not remove the irritation from them. I began to use them a few days ago, however, and found they were all right, and I promise you, after these are used, we will never use anything else here except J. & J. Catgut.

I have had an opportunity, and it has given me pleasure, to show your towels to a good many physicians and to several druggists, and I think it will be only a little time before you will have added additional laurels to your already large stock.

Wishing you always very well, believe me,

Sincerely yours, A. M. OWEN, Per L.

Do Your Ligatures Produce Suppuration? If they do, it is high time you made a trial of our Red Cross Aseptic Ligatures. They are the realization of the surgeon's dream. Order of your dealer —or if he hasn't them, send us his name and we will send *you* a sample.

Johnson & Johnson
New Brunswick, N. J.

INTERESTING CASES OF DYSPEPSIA

History.

A. G., age 59, female, single. has always suffered from weak stomach, 15 years ago was confined to bed for three weeks with gastro-enteritis. Under the care of Dr. Panwart recovered, but was for several months after weak and subject to indigestion and loose bowels, no organic, uterine or hereditary disease. Came under my care two years ago. I diagnosed the case as chronic gastric catarrh. Remedies directed to the abnormal secretion of mucus and anti-ferments generally gave relief, but relapses, even when a strict diet was enforced, were frequent.

Treatment.

August, 16th ult., her diet was directed to consist of a cup of cocoa with a slice of stale bread, a saucer of cracked wheat, salted, without sugar, and one chop for breakfast. Broiled steak, roast, broiled chicken or lamb chop, with one vegetable (either spinach, a few lima beans or fresh peas, one small baked potato or celery) for dinner. Some stewed fruit, raw or broiled oysters, or a little steak or roast, with a small cup of tea for supper. Each meal preceded a half hour by a tea cup of very hot water; no desert or pastry was allowed, nor ice water permitted during meals. One papoid tablet was given immediately after each meal, but in the first week did not seem to materially benefit her, and at the end of that time I had to order a mixture of carbolic acid, sub-carbonate bismuth, glycerine and peppermint water to relieve a severe attack.

Progress.

After three days the tablets were resumed, and I ordered one to be dissolved in hot water and taken before eating. This seemed to help her very much; she has taken them in this way for several weeks, and has now omitted the after-meal tablet, and. with the exception of one severe attack of pyrosis, has gotten along comfortably the three weeks last past.

Conclusions.

We have in this case a catarrhal state of the mucous coat of the stomach, with more or less atrophy of the peptic glands; obviously no medicine will cure that condition. Lavage is the best and proper treatment. Four tablets will certainly relieve some very distressing symptoms and make the patient more comfortable; perhaps do better than the majority of the pepsin preparations in the market, but this is all I would, in such a case, claim for them. Very respectfully,

CHAS. BAUER, M. D.,
929 N. Seventh street, Philadelphia, Pa.

History.

Mrs. ————, age 26 years, is subject to what she calls heartburn, and has been troubled with it for years, growing worse as time advances. She has tried scale pepsin with no benefit. Certain foods disagree with her; has tried dieting, with no favorable results. The diagnosis would necessarily be dyspepsia.

Treatment.

I gave her about half of the tablets you sent, me, with instructions to take one, dissolved in warm water two hours, after each meal, and in case of the uneasy sensations in stomach at any time to take one

Advised her to eat little or no meat, especially no fried meats; to avoid sugar and ether sweets, and such things as she had found to disagree with her.

Results.

Called on her about the time I thought she would use up the tablets given. She had used nearly all, but she said she could not perceive any difference; in fact, was no better. I wanted her to keep on with the tablets, but she declined using any of them.

I am myself subject to occasional attacks of dyspeptic symptoms, brought on mostly by cigar smoking. The remedy for this, of course, is to stop smoking.

Since having your digestive tablets I have, when suffering, used them by chewing them, and they have always relieved the trouble, taking three or four at a time. Of course one cannot arrive at an opinion with such limited experience. With thanks, I am sincerely yours, J. F. GRIFFIN, M. D.,

1204 Texas Avenue,
Shreveport, La.

History.

Mrs. S————, of New Foundland, N. J. For several years she has been troubled with severe acid eructations, pain after eating in epigastrium, great flatulency, irregular bowels, etc. Has been using various forms of pepsin, nux vomica, etc., with no particular benefit.

Diagnosis.

Catarrh of stomach, with flatulent dyspepsia.

Treatment.

Great care in diet—lime water with her milk and one of Johnson's Digestive Tablets after each meal and at bed time, dissolved in warm water, counter irritation over epigastrium, with Churchill's tincture of iodine, plenty of cold bathing, rubbing the body afterwards thoroughly with flesh brusher or coarse towel, active out-door exercise, long walks in sunshine, etc.

Results.

She reports herself much better; stomach much less irritable, less tympanites, acidity gone, appetite improved, strength increasing. Will continue tablets. Is gratified with results, and a firm believer in Johnson's Digestive Tablets. JAMES BROWN BURNET,

16 Chestnut Street, Newark, N. J.

DR. DAVID KENNEDY,
Physician and Surgeon,
Roundout Station,
City of Kingston, N. Y.,

KINGSTON, N. Y., Nov. 19, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—I am pleased to acknowledge receipt of your favor of the 18th, and note what you say in reference to your several products. I say it not to flatter, but simply as a matter of fact, that the reputation of your house is a guarantee of good things, and anything that you send me as samples I shall carefully test whenever opportunity affords.

Yours very truly, DR. D. KENNEDY.

PROVIDENCE, R. I., Oct. 19, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Dear Sirs—I have used your dressings with satisfaction in every case. Shall be pleased to receive your Red Cross Notes when convenient for you to mail them and should like to see a sample of your ligatures.

Yours truly, HUGH A. MCCOY, M. D.,
498 Broadway.

EAST LIVERPOOL, OHIO, September 16, 1898.

Messrs. Johnson & Johnson:

Dear Sirs—I purchased five pounds (5 lbs.) absorbent cotton in hospital package lately. I ordered J. & J., but when it came, its being marked as made by the "———— ————" made me suspicious, so I did not use any of it, and when the salesman came, he "assured" me that you put it up. I told him I would write you about it, and if it is your product I would keep it, if not, I do not want it. Yours truly,

J. T. ELLIOTT, M. D.

All cotton, gauze or surgical dressings put up by Johnson & Johnson bears their name and red cross trade-mark. No goods of this nature are put up under any dealer's name or any name but their own.

BROOKLYN, Sept. 30, 1898.

Gentlemen—I have just received a copy of your Red Cross Notes, and found it to contain excellent and interesting information. I shall be only too thankful to receive the same regularly.

Yours truly, LOUIS THUM,
1316 Bushwick Avenue.

HAND WASHING—JOHNSON & JOHNSON ASEPTIC LABORATORIES

PAPOID IN STRICTURE.

MANZANOLA, COL., Oct. 22, 1898.

Johnson & Johnson:

Sirs—I wish to call your attention to a property of the papaya not generally known, and, as you do not mention it in your circulars, I thought you too might not be aware of it. Having been into its home considerably, I have learned that used in cases of stricture it has given prompt relief, and I am informed the cure is permanent. This malady is so often a difficult one to treat satisfactorily that if you have succeeded in extracting the active principle unchanged it should be invaluable when its other qualities are considered. I am not a practicing physician, but studied under Wm. Gore, builder of the Eclectic College of Philadelphia, but the civil war cut me off just before graduation.

Of course I, in my travels, have had use many times for the knowledge gained, and do still.

I am interested in knowing of the success you are having with this remedy, and shall send soon for a bottle of the tablets to experiment with.

Hoping you have succeeded in this cure to your fullest wishes, I am Yours truly,

T. LITTE.

BELLADONNA IDIOSYNCRASIES OVERCOME BY ACETANILID.

BRODNAX, LA., August 25, 1898.

Messrs. Johnson & Johnson:

Gentlemen—There are some—women more particularly—who are very sensitive to the effects of Belladonna, and, as I note in your Red Cross Notes that you dwell on that subject, I thought you would be pleased with a small experience of my own. Recently one of my patients was troubled with ciliary neuralgia—sometimes called "hemicrania." I was reluctant to give her belladonna, knowing how she was affected by it, so gave her very small doses dilute. She was compelled to stop it. It occurred to her that acetanilid quieted her, and she took about two grams. In a few minutes the small amount of belladonna got in its work and instant relief followed. Third day afterward she had another attack and took two grams acetanilid with one-half drop of belladonna, with instant relief. Can you explain the phenomena? She had taken three drops during one hour in previous attack and no relief. Many kind wishes. Yours,

DR. BEN. H. BRODNAX.

Can any of the readers of Red Cross Notes explain the phenomena of the apparent action of acetanilid in overcoming the untoward action of belladonna in this or like cases?

The Digesting Melon

THE active agent in Johnson's Digestive Tablets comes from a tropical digesting melon (the Carica Papaya Melon), which can digest any kind of food known to man.

In Johnson's Tablets the active principle of the melon is preserved in a very remarkable degree.

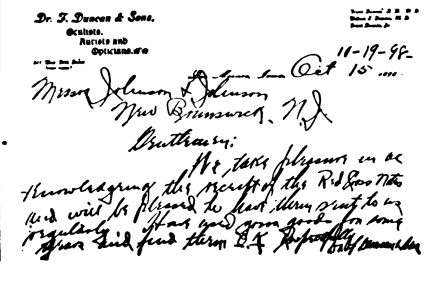
DR. T. C. WITHERSPOON,
4318 Olive Street,
ST. LOUIS, MO., Nov. 14, 1898.

Johnson & Johnson, New Brunswick, N. J.:

My Dear Sirs—The catgut sent me was received by this morning's mail. I am sincerely obliged to you. For a long time I have avoided catgut because of the question of its sterility, but, upon the recommendation of Dr. A. C. Bernays, of our city, lately it has entered again into my surgical case, using your preparation. So far it gives me pleasure to record no failures to get clean results.

Very truly,

T. C. WITHERSPOON.



A NEW SERIES OF REACTIONS FOR ATROPINE.

By Alfred R. L. Dohme, Ph.D.

AS USED IN THE PHARMACEUTICAL LABORATORY OF THE UNIVERSITY OF STRASSBURG.

Atropine.—$C_{17}H_{23}NO_3$. Melts in boiling water. Melting point, 115° C.

a. Soluble in ether, alcohol, chloroform and slightly in carbon bisulphide. Aqueous solutions of atropine turn red litmus paper blue and redden phenolphtalein paper.

b. 1 milligramme of atropine dissolved in 1 C.c. of alcohol and heated with 1 C.c. of a solution of mercuric chloride (1 part in water 19 parts) on a water-bath, will cause a precipitate of yellow mercuric oxide to be formed; not, however, if the atropine is added last. The reaction taking place is represented by the following equation:

$$2\,(C_{17}H_{23}NO_3) + Hg.\,Cl_2 + H_2O = 2\,(C_{17}H_{23}NO_3.H\,Cl.) + Hg.\,O.$$

c. Mecurio-potassium iodide containing (Hg. I_2 45.4 gms.) (K I 33.2 gms.) in one liter and mecurio-potassium bromide, containing:

(Hg. Br. 36.0 gms.) (K Br. 23.6 gms.) in one liter give precipitates with solutions of atropine, which soon become crystalline.

d. A solution of tannic acid (1 part in water 19 parts) gives a precipitate with atropine solutions, soluble in excess of the precipitant or in acetic acid.

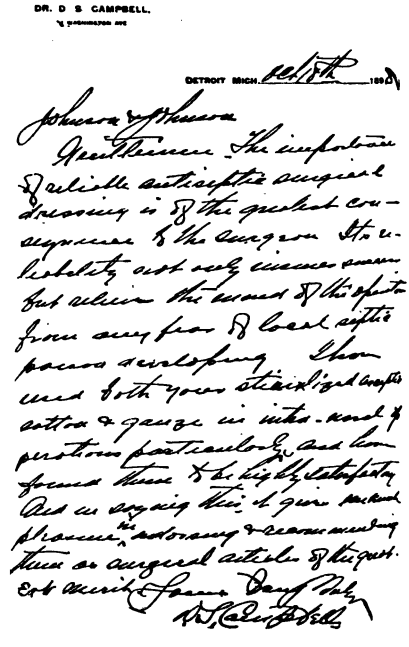
e. A solution of potassium bichromate (1 part in water 19 parts) causes no precipitate, and a saturated aqueous solution of picric acid causes a precipitate only in hot saturated solutions of the alkaloid.

f. 0.1 gramme of atropine, when boiled with 3 C.c. of water and 0.2 gramme of mercurous chloride, causes the latter to turn black; on filtering the boiling alkaline liquid and supersaturating this, after cooling, with dilute nitric acid, there will be formed a considerable precipitate on the addition of silver nitrate solution.

g. By heating about 1 milligramme of atropine in a glass tube until white fumes begin to form, then adding 1 C.c. of sulphuric acid, specific gravity 1.840, again heating until the mass begins to turn brown, then carefully adding 2 C.c. of water, drop by drop, a very pleasant odor is developed. This is very easily destroyed if only a trace of potassium bichromate or permanganate be present before the addition of the water.

h. By heating 1 C.c. of glacial acetic acid with 1 C.c. of hydrochloric acid, specific gravity, 1.124 and 1 milligrame of atropine, the mixture will become fluorescent, the color being greenish yellow. The pleasant odor mentioned under *g.* can also be detected in this case.

i. Rub together on a porcelain plate 1 milligramme of atropine and 1 milligramme of sodium nitrate, and make a paste of this by adding to it one drop of sulphuric acid, specific gravity, 1.840. Now add to this some solid caustic potash, and moisten the mass with a few drops of alcohol; a beautiful violet color will be produced.



AMERICAN MADE PLASTERS ARE THE BEST IN THE WORLD

E. T. Johnson, Chair Pharmacy in Kentucky School Medicine, Member State Board Pharmacy, Louisville, Ky., says: I have been selling Johnson & Johnson's products for several years past in my retail store, and we have used them in the Kentucky School Medicine; have found them satisfactory, in fact preferred to any other make. I wish to specially mention Johnson's Belladonna Plasters; my customers very often ask particularly for Johnson's, as they appear to have special merit.

DANIEL W. DIMOCK, M. D.,
BROCKTON, MASS., Nov. 8, 1898.

Johnson & Johnson:

Gents.—You have seen or heard that perfection was never yet attained by man. I think the one that originated the statement has never had occasion to use Johnson's Belladonna Plasters. If that person were known and "getatable" I would forward him one by express. He would change his mind rapidly. They are perfect. I never use any other. The Red Cross Notes are just the thing for the busy physician. They give an amount of information by a glance that might take him hours to ascertain if obliged to search his library. I hope you will continue to send them. No one will want to use different kinds of dressing gauze after once having used the linton moist and sterilized gauze; it is just O. K. Yours respectfully,

DANIEL W. DIMOCK, M. D.

AMBROOK, HALF WAY TREE P. O.,
JAMAICA, W. I., Oct. 7, 1898.

Gentlemen—I am extremely obliged for the copies of Red Cross Notes, which are most interesting and instructive. Will you be good enough to forward your Notes on Catheters. I presume prices are there stated, and that they can be sent by parcel post. What amount to be sent? If not encroaching too much on your good services, may I ask if you can and will give me the following information? Can I practice in Maryland, *or any other* Southern State, on the strength of my license from Connecticut without having to undergo a medical examination? I am, gentlemen, your obedient servant, LOGAN RUSSELL.

MALONEY, TEXAS, Nov. 10, 1898.

Johnson & Johnson:

Gentlemen—I have used your surgical material for five years. I prefer it to all others. Please send me Red Cross Notes regularly.

Yours truly, DR. C. S. KING.

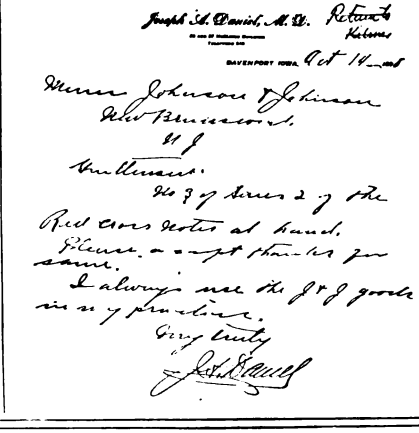
THINGS WELL DONE.

We have seen few cards more simple in design and yet more effective than the one used by Johnson & Johnson for their belladonna plaster. The design is a hand, with a forefinger placed directly on a spot and the words "Johnson's Belladonna Plaster touches the spot." The directness of the design is very striking, and concentrates all the virtues of these plasters in th one idea. The card is used as a hanger in drug stores.—*Art in Advertising.*

ROBINSON DRUG COMPANY,
Fine Drugs and Chemicals,
RACINE, WIS., Oct. 10, 1898.

We have handled Johnson & Johnson's goods exclusively for the last five years in our three stores. We are enjoying a healthy and constantly increasing demand for their goods, notwithstanding the fact that many overtures have been made to us by other manufacturers to place their goods in our stores. We can find no inducements for reasons to change, as our local physicians nearly all demand J. & J. Especially are they particular in specifying J. & J. when they prescribe belladonna plasters. Yours,

ROBINSON DRUG COMPANY,
Wm. Thiesen.



JOHNSON'S BELLADONNA PLASTERS ARE MADE IN AMERICA

78 Successful Operations

For Appendicitis

Without Loss, is the Record of a leading surgeon in St. Louis. His tools were

Clean Hands

Sterile Instruments

Bernays' Sponges

Linton Bi-Sterilized Moist Iodoform Gauze

Johnson's Sterilized Gauze Bandages

Red Cross Sterilized Gauze

Johnson's Adhesive Plaster

RED CROSS NOTES

BOSTON MEDICAL
FEB 13 1900
LIBRARY.

INTERESTING ITEMS

Invasion of New Jersey 1
Bernays' Sponge in the Nose 4
A Case of Loose Cartilage in the Knee Joint 6
A New Diastase 7
Let Us be Thankful 8
The Canadian Analysts Surrender 9
Iodoform Without Odor—the "Skunk of Surgery" Banished 12
The Teeth; Their Daily Care 20

SERIES TWO. NUMBER SIX

JOHNSON & JOHNSON, NEW BRUNSWICK, NEW JERSEY

Johnson's Absorbent Cotton

not only looks clean, but is surgically clean. It is free from irritating chemicals, poisonous dirt, disease-breeding germs and all foreign matter. It is

Nothing But Cotton

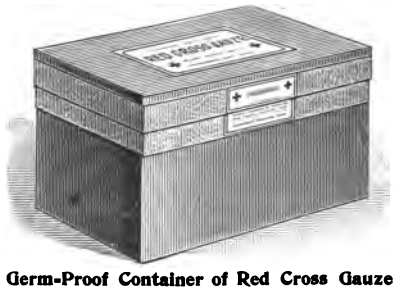
and is the only kind fit for dressing wounds, for filtering, chemical or domestic purposes. It costs no more than the common kind. Look for the Red Cross on the label.

Undeniably Aseptic

Red Cross Ligatures are rendered aseptic while enclosed within a germ-proof envelope, by successive action of sterilizing agents, including a final boiling in cumol compound, at a temperature of 320 to 340 F., they are then enclosed in an outer envelope. Each

Red Cross Ligature

is in a separate envelope, and can be carried in the pocket without danger of infection. The catgut ligatures come in 30-inch lengths, and the silk in one yard lengths. Samples of silk or catgut Red Cross Ligatures sent to any surgeon upon request.



Germ-Proof Container of Red Cross Gauze for 25 and 100 Yard Rolls.

Red Cross Gauze

is the only kind that's fit to use on a wound. It is a high-grade gauze, surgically clean, free from germs, sterilized, and undeniably aseptic. Packed in one-yard cartons, five-yard cartons, 25 and 100 yard rolls, all sterilized after packing within the container and sealed; a portion can be used without contaminating the remainder. Sample sent free.

RED CROSS NOTES

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SERIES II, No. 6. NEW BRUNSWICK, N. J. 1899.

GERMAN INVASION OF NEW JERSEY

NEW YORKER DEUTSCHE APOTHEKER-VEREIN INSPECTS THE JOHNSON & JOHNSON LABORATORIES

FROM *The New Brunswick Times*, January 13, 1899.

The members of the New Yorker Deutsche Apotheker-Verein visited this city yesterday, the guests of Johnson & Johnson, the local manufacturing chemists. They inspected the large plant of this well-known firm, on Neilson street, and were entertained with a banquet at the Mansion House.

On arriving here they were met by J. W. Johnson and other representatives of the firm who looked after their welfare while in the city.

The guests were conducted through the various departments in the factory, where the various processes were explained, and then taken to the office building, on North Neilson street, where Fred B. Kilmer entertained them with a stereopticon exhibition, in which slides of the factory and its workings were shown.

The guests then proceeded to the Mansion House where they banqueted at two o'clock.

Mr. Schleussner voiced the sentiments of all in proposing a toast to the welfare of the firm whose hospitality they enjoyed. It is needless to say that it was given with a will and in true German style.

The menu-card was very beautifully gotten up and a novel souvenir of the occasion. It read as follows:

Caustic Points, Celery Seed.
Carica Papaya Soup Sterilized Cotton Rolls,
Vinum Colchici—Wortmann
Iodized Cuttle Fish,
Cultilavine Sauce, Gregorius,
Chromicized Fish Berries,
Chavard's Tonic Sauce—Eschmann,
Antediluvian Spring Lamb,
With Capers by Mayer,
Vinum Antimonii—Werner,
Fricasse of Cantharides,
Camphorated, Will Blister,
Rare Roast Beef (1812),
Nucleo Morrhuene Sauce—Kalish,
Wild Turkey Rhubarb.
With Sultan's Antisepthol,
Vinum Opii—Hirseman,
Brazed Kidney Plaster,
Red Cross Dressing, J. & J.,
Domestic Hare—Rogers' and Stephens' Raising,
Roast Catgut Ligatures,
Shaw's Rheum Cure—Faber,
Bitter Apple Fritters—Coca Butter Sauce,
Vinum Ferri—Schleussner,
Boiled Catheters, Mashed Cubebs,
Stewed Zonas Corn,
Baked Aloes, Vanila Beans,
Fried Styptic Leaves,
Bernays' Sponge Cake. Flaxseed Cake,
Surgeon's Sponge Cake,
Champagne, New Brunswick,
Wild Cherry Pie, Cor. Sub. Angel Cake,
Bitter Almond Pie,
Plain Fruit, Perforated Fruit,
Zonweiss Cream, Cold Cream.

F. B. Kilmer, head chemist of the firm, presided as toastmaster in the absence of the president, R. W. Johnson, who was ill with the grip.

He read a note of regret from R. W. Johnson, whom he called the motive power of the J. & J. plant, the man who had led that industry up to the high position which it now occupies, and whom Mr. Kilmer termed one of the kindest of hosts and the best of fellows.

Mr. Johnson's note was cordiality exemplified. He wrote that he felt honored by having the J. & J. plant inspected by his friends, the members of the verein. He was glad to afford them this opportunity of gaining an exact idea of a manufacturing pharmacy. To his belief, the interests of the wholesaler, retailer and manufacturer are mutual. He mentioned the fact that Johnson & Johnson refuse to sell direct to the consumer, the physician or the department store. Disaster and many evils are avoided by this practice. Too many precautions cannot be taken in distributing and selling surgical goods. The use of of rigorous precautions means the saving of human life. Mr. Johnson was of

the opinion that to sell medical and surgical goods too cheaply is a mistaken policy. He attributed the success of Johnson & Johnson to the co-operation of their retail friends, and he congratulated the society upon its members and its influence.

Dr. Arndt, of Brooklyn, recited a comic poem called "The Dinner Bell." James Rogers, of New York, agent for J. & J., spoke of the position of the retail pharmacist as guardian between the physician and his patient, in a sense. Johnson & Johnson, he said, had ever been mindful of the retailers' needs. They have perfected surgical dressings so that to-day the home may be as well equipped as the hospital. Mr. Rogers told numerous funny stories and jokes.

Mr. Imhof, honorary president of the verein, humorously expressed his surprise at the civilization of New Jersey, approximating so nearly to that of New York. He attributed this enlightenment solely to Johnson & Johnson. He said that since they settled in New Brunswick the town had grown three fold in population, and that the value of real estate had increased 10 to 15 per cent.; furthermore, that more people were born in the city and less people died than in the time previous to the location of the plant.

Mr. Stephens responded to a call by making a few general remarks.

Honorary President Ramsberger, the oldest pharmacist present, he having been in the business over sixty years, expressed his appreciation of the occasion and of the wonderful progress made in the art of making surgical dressings. He cited as an object of his peculiar wonder the facile way in which J. & J. plasters are mechanically spread, and he called to mind the crude and wearisome method of spreading by hand in his younger days.

Charles W. Parsons, editor of the Pharmaceutical Era, Gerhard Mennen, Dr. Hirseman, Dr. Balser and others spoke.

The guests drank a toast to R. W. Johnson and after a few more pleasantries adjourned to catch their train.

DER AUSFLUG DES NEW YORKER DEUTSCHEN APOTHEKER-VEREINS

nach New Brunswick, um einer Einladung der Firma Johnson & Johnson Folge zu leisten, fand an dem dazu bestimmten Tage, 12. Januar statt.

Die Theilnehmer, etwa 80 an der Zahl, fuhren mit den 3 Ferrylinien der Pennsylvania R. R. Co. nach Jersey City und dort angekommen, wurden sie von Hrn. J. R. Rogers, dem lokalen Vertreter der Firma Johnson & Johnson in Empfang genommen. Um 9.15 wurde der nach New Brunswick gehende Zug bestiegen. Hier wurden die Gäste mit einem weissen Knopf, worauf das rothe Kreuz, (Trademark der Firma J. & J.), dekorirt. Während der einstündigen Fahrt standen für Liebhaber feine Regalias bereit und war die Stimmung die animirteste. Am Ziel angekommen, wurden die Ausflügler auf das Freundlichste von den HH. J. W. Johnson, F. B. Kilmer (Chemiker der Firma), Stephens u. a. im Geschäftsbureau empfangen und, nach kurzem Aufenthalt, wurde die 4 Stunden dauernde Besichtigung eines grossen Theiles des Etablissements unternommen. Dasselbe befindet sich auf einem Grundstück, welches über 5 Acres einnimmt, ist an beiden Seiten des Raritanflusses gelegen und schliesst ca. 25 Gebäude ein. Die Inspektion terminirte im Packzimmer für Pflaster, wo Vorkehrungen für eine Stereopticon Schaustellung getroffen waren. Dieselbe stand unter Leitung des Hrn. Kilmer, der unermüdlich war, alles zu erklären. Es wurde zuerst die Wesenheit der Röntgenstrahlen veranschaulicht. Das Bild einer Dame in gewöhnlicher Kleidung wurde gezeigt, dann das Bild derselben Dame mittelst X-Strahlen durchleuchtet. Darauf erschienen auf dem Schirm die Bilder der HH. Imhof, Kessler, Hirsemann, Schleussner, sowie des verstorbenen Präs. Kostka und ein solches von einem der Chefs der Firma, Hrn. R. W. Johnson. Eine Reihe von interessanten Momenten wurden veranschaulicht, über das Wachsthum der Baumwolle, deren Zubereitung, Verarbeitung, Sterilisirung mittelst Formaldehyd und schliesslich die grossen eisernen Behälter gezeigt, um Baumwolle absorbirend zu machen. Lord Joseph Lister war das nächste Bild, wozu Hr. Kilmer eine kurze Lebensbeschreibung gab. Eine Belladonna-Pflanze in vergrössertem Maassstabe kam ebenfallszur Ansicht und sonst noch viele andere Illustrationen. Nach dem Verlassen der Fabrik wurde auf dem Rasen vor einem der Hauptgebäude ein Gruppenbild genommen und dann nach dem ca. 4 Block entfernten Mansion House dem grössten Hotel der Stadt übergesiedelt, wo zunächst Einer hinter die Binde gegossen wurde. Etwa um zwei Uhr liess sich die Gesellschaft an einer die ganze Länge des Essaales einnehmenden Tafel nnd an 12 kleinen Tischen von je 4 Gedecken nieder. Die Speisekarte, welche jedem Gast überreicht wurde, war von neuester Erfindung und das darauf enthaltene Menu ebenfalls. Erstere war ein Erzeugniss der Fabrik und bestand ausser einem eleganten Umschlag mit rothem Kreuz aus einem selbstgefertigten Stoff (Lintine), worauf folgende „lukullischen Gerichte."

Jeder Speisekarte war eine kleine Schachtel mit Verdauungstabletten nebst chirurgischen Schwamm angehängt.

Bei Tisch führte Herr F. B. Kilmer mit grossem Geschick den Vorsitz, zu seiner Rechten sass Präsident Schleussner. Letztere sprach in einer humoristisch gehaltenen Rede den Dank des Vereins für die höchst freundliche Aufnahme aus. Er kam dabei auf das Theaterstück „Too much Johnson" zu sprechen und meinte, die die Theilnehmer, würden gewiss mit ihm übereinstimmen, dass in diesem Falle wohl schwerlich von „zuviel Johnson" die Rede sein dürfte.

Herr Kilmer verlas einen Brief des Chefs der Firma, worin dieser die Gäste bewillkommt, aber bedauere, Krankheitshalber verhindert zu sein, persönlich Theil zu nehmen. Herr Schleussner forderte Hrn. Arndt auf, etwas vorzutragen, worauf dieser die „Wunderbare Tischglocke" zum Besten gab. Als Redner folgten die HH. Imhof, Stephens, Ramsperger, J. W. Parsons, Kilmer, Rogers, Mennen von Newark, Hirsemann und Dr. Balser. Die meisten derselben wählten die poetische Form. Hr. Schleussner brachte ein 3 faches Hoch auf die Firma Johnson & Johnson aus und einen speziellen Toast auf die Gesundheit des. Hrn. R. W. Johnson. Hr. Arndt hielt schliesslich noch einen botanischen Vortrag über die Skatpflanze.

Gegen 5 Uhr verabschiedete man sich von den Gastgebern. Alle Theilnehmer sind ob dieses Ausflugs und der ihnen zu Theil gewordenen Aufnahme voll des Rühmens. Nicht nur haben sie angenehme Stunden verlebt, sondern ihr Wissen über Fabrikationswesen in grossem Style erheblich bereichert.

DR. J. D. JUSTICE,
727½ Hampshire Street,
QUINCY, ILL., Oct. 24, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—Have been using your goods for many years, and I see you are continuing up-to-date in that you are to begin manufacturing aseptic toweling. Please forward a sample, also of your Lintine. Being chief assistant surgeon of St. Mary's Hospital, I have many opportunities to test good material.

Yours, &c.,
J. D. JUSTICE.

ALLEGHENY, PA., Nov. 28, 1898.

Messrs. Johnson & Johnson:

Gentlemen:—Owing to the competition for quality in plasters, I have given same my personal attention, and upon request of our patrons can cheerfully say that J. & J. Belladonna Plasters always touch the spot.

Yours truly,
A. J. KAERCHER.

IRVING TOWNSEND, M. D.
67 West 46th Street. NEW YORK, Dec. 9, 1898.

Messrs. Johnson & Johnson:

Gentlemen:—Copy of Red Cross Notes received, and I would like you to send me subsequent numbers and also a full list of your surgical dressings and other preparations made by you. Your goods have given satisfaction always and have my entire confidence. Apropos of the belladonna plaster controversy, you no doubt have the best end of the argument, but as a specialist in diseases of the nose and throat, I seldom have occasion to use this article; though, if it was advisable to do so, would certainly give *yours* the preference. Few practitioners are influenced by "*advertising schemes*," obviously published for commercial purposes, to advance the interests of certain individuals, and as long as your products are equal to the *best* that are made, you have the first claim on the profession, and nothing to fear from unscrupulous competitors. Physicians, as a class, are *conservative*, and disinclined to give up a thing that has shown itself worthy of confidence, and substitute another whose chief claims for use depend on the statement that its competitors are "impostors," and wholly unworthy. "Yellow journalism" is not wholly confined to the daily newspapers, but I take pride in saying that it has not made *substantial progress* in the domain of medical literature up to this time, and I doubt if it ever does so.

Other ideas suggest themselves to me, but as I started to write only a few lines, they must be suppressed for the present.

Yours very truly, IRVING TOWNSEND.

KALAMO, EATON Co., MICH., Nov. 16, 1898.

Messrs. Johnson & Johnson:

Kind Sirs:—Thanks for the Red Cross. I shall be glad of further numbers. I am using papoid with great satisfaction.

Very truly yours, F. L. SNELL, M. D.

For several years past I have sold J. & J.'s Belladonna Plasters and your other products; I can candidly state they have given satisfaction both to the profession and the laity. My customers call again and ask particularly for Johnson's, a fact which gives me confidence to recommend Johnson's Belladonna. May the good work go on.

FRANK L. GROTHE, PH. G.,
Cincinnati, Ohio.

BERNAYS' ASEPTIC SPONGE IN THE NOSE AND NASOPHARYNX

With Special Reference to its use as a Pressure Hemostatic*

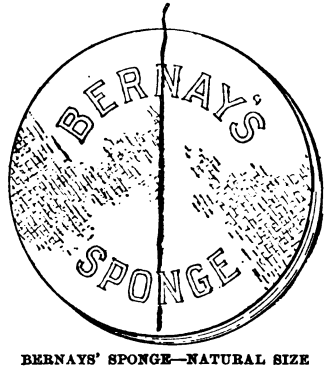
BY W. K. SIMPSON, M. D.

Fellow of American Laryngological Association; Surgeon to the New York Eye and Ear Infirmary; Instructor in Laryngology, College of Physicians and Surgeons, New York, Columbia University, etc.

The Bernays' aseptic sponge, so named after Dr. A. C. Bernays, of St. Louis, its originator, is an artificial product composed of properly prepared cotton fibre subjected to many hundred pounds' pressure, cut in a circular form with a die, and presented for our use in the shape of compressed circular discs about a sixteenth of an inch in thickness, and of two sizes: the small, an inch and a quarter in diameter, and the large, an inch and a half in diameter.

"The absorbing power of these sponges is much higher than that of gauze, cotton, or sea sponge."†

"A Bernays' sponge an inch in diameter, when dropped in water, absorbs the liquid and extends to more than fifteen times its size, absorbing twelve times its weight of fluid."†



BERNAYS' SPONGE—NATURAL SIZE

"The sponges are made absolutely aseptic by compression and subjection to disinfecting vapors."‡

The efficacy of their use in general surgery depends on their great absorptive power, thus enabling them to be used as ordinary sponges in the cleansing and sponging of wounds during operation, and in the subsequent packing and drying of wound cavities. After their use, they are thrown away, avoiding the necessity of fresh sponge preparation.

As their power of absorption continues, they become very much increased in size, thus being able to exert great pressure, limited only by the opposing sides of the cavity in which they may be placed. When brought to my attention in a general way about two years ago, it at once occurred to me that they could be utilized with excellent effect as a pressure hemostatic in controlling intranasal and postnasal hemorrhage, from whatever cause. I have used them during this time for that purpose in a great number and variety of cases, and can confidently say that as a means of controlling hemorrhage, both in the convenience of application and positiveness of result they have proved, in my hands, superior to any of the usual methods at our disposal.

The advantage of the use of the Bernays' sponge as a tampon is very marked in comparison with the usual method of packing the anterior or posterior nares with absorbent cotton or long strips of gauze, which we know is often a matter of great tediousness of accomplishment and uncertainty of result, frequently necessitating numerous repetitions, and perhaps abandonment of the method, before a complete cessation of the bleeding is secured. These inconveniences are almost entirely if not completely overcome by the simplicity of application and the great pressure caused by the rapid absorption and enlargement of the artificial sponge now under consideration.

This can be fully appreciated in treating severe forms of epistaxis or secondary hemorrhage remotely following operations, and also in the security it affords us in controlling immediate hemorrhage at the time of operation, or during the time the patient is sent away with the with the nose tamponed. The slow absorptive power and ease of supersaturation of absorbent cotton and gauze do not

*Read before the American Laryngological Association at its twentieth annual congress.—N. Y. Medical Journal.

†*Asepsis.* Johnson & Johnson.

‡*Ibid.*

guarantee us against recurring hemorrhage.

Mode of Application in the Nose.—The circular shape of the sponges being unsuitable for intranasal application, they should be cut in a semicircular form of the desired size, and then, with the nostril well dilated and illuminated, inserted with the convexity upward parallel with the septum, either with forceps or the hand. The thinness of the sponge allows it to be adjusted with ease to any remote point within the nasal cavity, when at once it will begin to absorb and increase in size.

They are removed with the forceps, or, if it has been necessary to place them very high up, or if the patient has been directed to remove them, a small hole may be made in the proximal end, to which a ligature may be fastened.

The pressure of these sponges within the nose is often very great, causing a proportionate amount of inconvenience. This may be overcome by splitting the sponge according to the size which we may deem sufficient. The patient may be furnished with a properly shaped sponge for self-introduction in case of anticipated anterior hemorrhage. In shaping them, it is necessary to use a very strong and sharp scalpel or strong sharp scissors so as to prevent tearing the edges. For tamponing the posterior nares, the smallest size disc may be used, in some cases without any shaping, but if too large, a small piece may be cut from either side of the disc, and, after a hole is made in either end for the reception of the strings, the plugging may be proceeded with in the usual manner. In fastening the string in the sponge for posterior tamponing, it is well to leave sufficient loop so as to give the sponge a full space for enlarging.

Other Uses.—Although I have principally used them as a pressure hemostatic, there are other purposes for which they may be used, some of which I have employed, and others which suggest themselves.

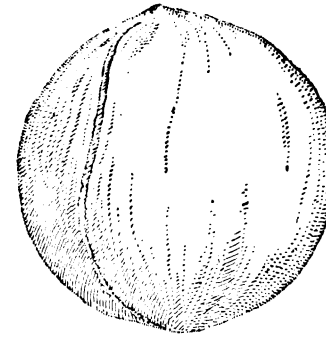
I have found them to serve as an excellent *splint* in the later stage of the Asch operation for deflected septa; notably in one case where the hollow tube could not be well adjusted, and where there was an overcorrection of the deformity to the convex side. The Bernays' sponge acted perfectly as a splint in this instance, bringing about a complete correction. This suggests their use wherever an intranasal splint is required, especially in fractures.

They are extremely useful in preventing adhesion of opposing surfaces after operation in narrow portions within the nares, and may be covered with very thin rubber tissue so as to prevent too rapid swelling.

As an intranasal dressing they serve an excellent purpose by absorbing the discharge, leaving the wound extremely clean; the wound itself or the sponge may be dusted with an antiseptic powder.

The sponge also may be used for conveying medicament to various portions within the nose; for producing irritation and moisture in cases of atrophic rhinitis, and for the application of cocaine prior to operation. For the latter purpose it is best to split the sponge before using.

Sometimes before using it may be advisable to moisten them very slightly, in order to hasten their absorptive properties. As with all nasal tampons, hemorrhage may be re-established on their removal; this may be somewhat overcome by previously applying an aseptic ointment to the sponge, which will facilitate its removal.



BERNAYS' SPONGE WHEN DROPPED IN WATER

It was my intention to present with this communication a series of properly shaped sponges for intranasal and postnasal use, and negotiations were under way, but had to be discontinued by the manufacturers on account of the heavy demand for hospital supplies incident to the present war.

When ready, I think the nasal-shaped sponges will be an added advantage.

In presenting this device to the association, I think we will find it a most valuable addition for the uses indicated. The sponges are prepared by Johnson & Johnson, and can be procured at all dealers in surgical dressings.

952 Lexington avenue, New York.

A CASE OF LOOSE CARTILAGE IN THE KNEE-JOINT.*

By Llewellyn Eliot, M. D.,
Washington, D. C.

W———, white, male, adult, injured the right knee about six years ago. At the time he suffered considerable pain, but eventually suffered no inconvenience. About four or five months ago began to experience pain in the joint, and then noticed a moveable body. He was treated for rheumatism by internal medication, and for a sprain with massage, liniments, and electricity. At the time of my first consultation the knee was treacherous, giving way at unusual times, causing suffering and detention from business, nor was he able to properly ascend the stairs. A rubber bandage afforded relief, but it was only temporary.

On April 11th, I removed a piece of cartilage of irregular size, 1x¾x½ inch; the wound healed rapidly. On April 22d, he noticed a second free body; this was removed on April 26th; was of more irregular shape than the first piece, 1¼x1½x¼ inch; this wound also healed rapidly. The pieces were both taken from the same wound. Each piece was crowded as far from the joint as possible, and then removed from the outer side of the joint. At the second operation, I explored with my finger as much of the joint as was possible. No attempt was made to peg these pieces to the articular surfaces, as I thought the time of their separation had been too long. At the time of the first operation the second piece of cartilage was not free, and therefore not discovered.

In making these operations I employed for sutures the Red Cross Aseptic Catgut, and with the greatest satisfaction. The method of the preparation of these sutures is so well known I shall not give the details.

*Read before the Medical and Surgical Society of the District of Columbia, October, 1898.

Discussion.

Dr. Bovee said the specimens were of great interest. He was especially interested in the catgut presented. The points to be remembered in the selection of catgut ligatures are their freedom from infection, that they do not corrode the tissues, do not slip or yield. Different manufacturing firms have different scales for numerous catgut, and therefore no reliance is to be placed on their measurements. Uses practically no other ligature material. At Providence Hospital it is prepared by dry heat and cremol, while in Columbia Hospital formalin and alcohol are used. Has removed formalin catgut from a dog three months after insertion. In these cases there was a slight serus discharge.

Dr. Carr said catgut in the form presented in the Red Cross Ligatures is most convenient, but even in these packages care must be used to prevent infection. Dr. Reed infected catgut by simply touching the side of the bottle containing it. Thought the best way to prepare catgut was to harden in formalin, but do not sterilize; boil it when needed; all the formalin could be washed out by running water.

Dr. Eliot said he had used all sorts of catgut, but was so well satisfied with the Red Cross Ligatures that he used it to the exclusion of all others. The catgut sold on spools, then placed in various solutions in rubber-stopped bottles, was deluding, for the rubber became soft and gummy and dirty, and when the ligature was drawn out it was unsafe. The firm preparing the ligatures presented was not an exception to the rule. Found ligature broke too often upon little traction.

COLLODION BANDAGES.

Dr. Schliep in the *München Med. Wchnschr.*, recommends for hernia of the umbilicus a thin pad of cotton three or four inches square, dipped in collodion and applied as a bandage with gentle pressure.

A NEW DIASTASE.

Johnson & Johnson, as purveyors of the vegetable ferment Papoid, have received from physicians in all parts of the country suggestions tending to show that it was desirable to secure a reliable diastase or starch digesting ferment by the means of which they might assist the digestion of starch without at the same time introducing other digestive agents, or that would not in any way inferfere with the organs of digestion. To meet these requirements Johnson & Johnson now announce a diastase capable of digesting from fifty to one hundred times its weight of starch in from ten to fifteen minutes, and which will be found peculiarly serviceable. This diastase is a vegetable starch digesting principle in powder-form which acts with great energy and promptness, and it is placed before the profession with the utmost confidence that it will meet all expectations and prove a reliable agency to compensate for an insufficient salivary digestion.

This diastase will be found acceptable to the most delicate stomach and much more efficient and agreeable than the thick sweet extracts of malt.

Diastase Johnson can be mixed with the food, such as oatmeal, pudding, etc., for children, invalids and others who evince difficulty in digestion and the assimilation of starchy food. While equaling in digesting power numerous preparations sold for a similar purpose, is offered at a price within the reach of ordinary practitioners and their patients. The usual dose of Diastase Johnson is from one to five grains. It is usually given at meal times, either immediately before or with the food. When the intestinal digestion of starch is at fault it may be given an hour or so after eating.

A sample of Diastase Johnson will be sent to any physician who will send Johnson & Johnson a written request for the same upon a printed letter head.

M. F. Carnes of Baltimore, puts a label on everything he dispenses which reads: "I hereby guarantee the quality of this medicine, regarding purity and accuracy of preparation." M. F. Carnes says: "I have sold Johnson's Belladonna Plasters for years, and recommend them above all others, because they have given satisfaction in every case."

"I believe **Johnson's** Belladonna Plasters to be manufactured strictly in accordance with the U. S. Pharmacopeia. I have always found them to be perfectly reliable and I believe them to be the best belladonna plasters on the market to-day."—EDWARD FIGEER, Bates House Pharmacy, Indianapolis, Ind.

"Regarding belladonna plasters, let me say that I have been selling the different makes of plasters since 1861, and have been buying your plasters from Mr. Bransome ever since he has been with you, and I have to receive as yet, the first complaint about their efficiency." Yours respectfully, WM. C. WALTER, Philadelphia.

LET US BE THANKFUL.

JOSEPH P. REMINGTON, PH. M., Philadelphia.

How common it is for the merry reporters for the daily newspapers to ridicule modern medicine and pharmacy, and how little real knowledge do these modern "Knights of the Quill" possess. A dip into medical and pharmaceutical literature of the last century would not fail to convince even Robert Ingersoll of the vast strides these vigorous professions have made. From the "Pharmacopeia Extemporanea" of Thomas Fuller, M. D., Cantab, published about two hundred years ago, a few extracts are appended. In the preface of this notable book of the day, the doctor quaintly writes, when referring to the formulas in his Pharmacopeia:—"I still varied Prescripts as Indications required: Saw and tasted everything ordered (sic:) observed its effects and defects, and constantly amended all I disliked." The doctor apologizes for his verbosity as follows:—"If any dislike my Language, and say I have filled it full of hard Words, I confess I have so, and that partly upon direct Design, that I might involve, and keep myself close from being searched out and rifled by every illiterate Quack and busy Gossip. And partly upon necessity, for Philosophy and Physic are not so naturalized yet, as to speak plain English, and therefore we must let them keep to their own Greek and Latin terms, and many times Expressions too. And did we not so, we should be not only ridiculously singular, but also less understood."

While we see, even in our enlightened age, men of the Doctor Fuller type who confuse the issue and stifle criticism by what is vulgarly termed "bluffing," the following paragraph from his preface quite exceeds anything that the writer has ever seen. "And those that are so *mean*, that they can't apprehend the language *I* write, ought not to read it, *nor dabble in Physic.*"

Here is a page from the book:

(360)

A Quinsy Plaister.

Take Diachylon simple 3 *drams*; *Chymical Oil of Wormwood* 18 *drops, mix.*

Lay it to the Throat, from Ear to Ear, but trust to no inward nor outward Remedies, without good Bleeding.

A Spinale Plaister.

Take Dispalma half an ounce; *Oxycroceum* 2 *drams*; *Oil of Amber* 12 *drops, mix.*

'Tis excellent in Pain and Weakness of the Back, where 'tis not too hot, and in Obstructions of the Spinale Marrow. Let it be laid to the Back Bone of Rickety Children, all along, from the Nape to the *Os Sacrum.*

1. Splenetic Plaister.

Take Plaister of Cummin, Melilot compound, Gum Tacamahacca, each 2 *drams, Plaister of Hemloc, with Ammoniac, Balsam of Peru, each* 1 *dram, mix.*

It returns into the Channel of Circulation, atrabilarious Feculencies collected, and stagnating in the *Hypochondria*: And also quiets and composes the Corrugations, Tensions, and Spasmodic Affections of the Fibres.

2. Splenetic Plaister.

Take Plaister of Cummin 3 *drams, Oxycroceum, Tacamahacca strained, each* 1 *dram and half*; *Oil of Sassafras* 3 *drops, mix.*

If the harmless plaster named in this page Splenetic Plaister could possibly accomplish even a tithe of its marvelous properties—say, for instance, collect even *one* of the "atrabilarious feculencies"—I am sure it would not be long before the plaster manufacturers of the United States would, with their usual enterprise, make splenetic plaster a formidable rival to the popular belladonna. Let us be profoundly thankful that the medicine and pharmacy of our day have kept pace with our enlightened civilization.

Some of the French surgeons wash every cut surface, of whatever kind, with a two to five solution of carbolic acid; they even use this in the peritoneal cavity.

THE CANADIAN ANALYSTS SURRENDER

In the last issue of Red Cross Notes the misleading, false and unscientific assays of belladonna plasters by the Canadian analysts was given in detail. In this arraignment variations of from ten to over ten times one hundred per cent. on identical samples were shown, together with the utter worthlessness of the Bulletin issued by the Canadian Government purporting to be the results of an examination of the belladonna plasters found in the Canadian market. The lack of familiarity of the Canadian chemists with alkaloidal drugs, especially belladonna, belladonna extract and belladonna plasters was fully elaborated.

It was shown that these Government chemists, when samples were submitted marked simply with a number, would condemn pharmacopeial plasters even when made exactly in accordance with the Br. Pharmacopeia from extracts bought in the Canadian market.

That they would pronounce plasters up to the standard Br. Pharmacopeia, made up without any belladonna extract whatever, and had done so with samples specially made of extract of dandelion and filled with alkaloids other than atropine.

It was also shown that when samples bought in the Canadian market had the maker's name removed, these chemists would give an entirely different result than had been given in their published assay.

Messrs. Johnson & Johnson presented these facts in a lengthy document, a copy of which is given in full in Red Cross Notes No. 5. It was presented to the Minister of Inland Revenue, Sir Henry Joly, and was the subject of an extended conference between the Canadian representatives of Johnson & Johnson; Mr. McFarlane, Chief Chemist; Mr. Gerald, Assistant Minister; Prof. Bemrose and others.

As a result the Department was convinced that there was good ground for complaint and that whatever injustice had been done should be righted at once.

In accordance with this decision the following official letter was ordered sent to Messrs. Johnson & Johnson through their Canadian agents:

DEPARTMENT OF INLAND REVENUE.

OTTAWA, 26th January, 1899.

Messrs. Gilmour Bros. & Co.,

485 St. Paul St., Montreal.

Gentlemen—I beg to acknowledge the receipt of Messrs. Johnson & Johnson's complaints regarding Bulletin No. 58, "Belladonna Plaster."

Your Mr. Gilmour was informed this afternoon that the Department had decided to make a further examination of these plasters, in order to satisfy itself, and at the same time the trade, that no injustice has been done. That the comparisons may be fair ones, one analyst will perform all the examinations.

I remain, Sir, Your obedient servant,

(Signed) W. J. GERALD,

Assistant Commissioner.

An agreement was also arrived at and steps taken for its execution under the direction of Sir Henry Joly, substantially as follows:

Fresh samples of belladonna plasters are to be at once collected throughout the Dominion of Canada, comprising at least four of the manufacturers referred to in Bulletin No. 58.

Messrs. Johnson & Johnson are to submit to the Department suggestions as to the best process for analyzing belladonna plasters, and the process used for the examination shall be one which shall be agreed upon between the Department and themselves.

The process to be adopted will be such as shall show whether belladonna plasters in the Canadian market are really made of belladonna extract or are compounded from Hyoscyamus, Scopolia or other drugs for cheapness, or are filled with alkaloids for assay purposes.

Their report will state in the case of plasters made in the United States and sold as conforming to the U. S. Pharmacopeia, whether they conform to that authority or not.

Plasters sold in the Canadian market as conforming to the Br. P. of 1898 (which establishes a slightly higher standard than that of the U. S. P.) shall be judged by that authority as to whether they contain the required amount of true belladonna alkaloids.

Plasters made of other drugs than belladonna will not be classed as belladonna plasters, but will be reported in accordance with their true contents.

The results of this examination, which will be made mutually acceptable to the Department and to the manufacturers will be issued in a new bulletin.

The Department officials were impressed with the statements made by Johnson & Johnson's representative, their publications regarding belladonna and its preparations and admitted that these showed a great familiarity with the subject at hand.

Thus is secured another great victory for Red Cross Notes upon belladonna plasters. In these columns we have from the beginning maintained a dignified and scientific discussion of the subject. We have upheld the standard of American pharmacy; we have urged the common cause of the manufacturers of reliable preparations when we believed had been unjustly or ignorantly assailed. In our contest with the so-called expert of the Revision Committe and in the present instance with the Canadian Government, a still greater triumph has been obtained.

We believe that hereafter when chemists attempt to publish the results of their assay, they will be more careful as to the ground upon which they stand, and make themselves thoroughly familiar with the subject before they proceed further.

BELLADONNA PLASTERS.

The following is from the *Dominion Med. Monthly* for November:

A curious mistake was made by the Research Committee of the Committee of Revision of the United States Pharmacopeia on their method of assay of belladonna plasters, and incidentally attempting to establish a standard of strength. According to the text of the Pharmacopeia, emplastrum belladonna is prepared as follows:

Alcoholic extract of belladonna.....200 gm.
Resin plaster.....400 gm.
Soap plaster.....400 gm.

To Make One Thousand Grammes.

Melt the plasters on a water-bath; then add the extract of belladonna and continue the heat, stirring constantly until a homogeneous mass results.

It will therefore be seen that the proportions are 20 per cent. of extract, 80 per cent. mass. In their experiments the committee took 33⅓ per cent. of extract and consequently got .393 and .377 per cent. of alkaloid in belladonna plasters from their own figures. If they had followed the pharmacopeia, the alkaloidal standard would have been .230 to .238 per cent. Assays of belladonna extract, and plasters made from the same, by Charles Caspari, secretary of the American Pharmaceutical Association, shows the following results:

	PLASTER.	EXTRACT.
Sample B.....	.301	1.835
" C.....	.240	(1.30)
" E.....	.160	.908
" A.....	.173	.870
" D.....	.290	.172
Mean of five samples,	0.232	1.326

It will therefore be seen that the alcoholic extract of belladonna, as supplied by five of the most reliable manufacturers, averages 1.326 per cent. and when plasters are made from these extracts, according to the Pharmacopeia, they would contain .232 per cent. alkaloid in the plaster mass.

Charles Rice, chairman Committee of Revision of the United States Pharmacopeia, believes that .3 per cent. of alkaloid should be the standard in the Pharmacopeia. It is difficult to see how he can advocate this standard. This standard cannot be obtained without difficulty, by using merely alkaloidal extracts. There is a gradually growing conviction amongst those best able to judge that you cannot obtain the same effect from the purified alkaloid that you can from it in its natural combinations, and we cannot conceive of a more reprehensible practice than that of making up the required standard by addition of pure alkaloid to an inert mass. The whole question resolves itself to this: We must have first a thorough knowledge of our extracts and what should be their alkaloidal strength, without this no standard can be made. It appears from the best information at hand, that .3 per cent. is too high, and we consider .25 per cent. would more nearly approach correctness; we say, therefore, that it is much better to have a lower possible percentage than a high impossible one, which must necessarily lead to sophistication.

THE UNIVERSITY OF IDAHO,
DEPARTMENT OF CHEMISTRY.

MOSCOW, Dec. 13, 1898.

Johnson & Johnson, New Brunswick, N. J.:

Dear Sirs—I have just received your late issue of Red Cross Notes, and am highly pleased with it. Will you kindly place my name on your mailing list for Red Cross Notes and such other publications as you may issue. Will you also send me such of your publications as you have on hand. I should like a complete file of the Notes. I am very much interested in pharmaceutical work, and have done considerable work along that line.

I wrote you some time since in regard to the "belladonna plaster test." Your Notes say the contest closes January 1, 1899. My work has been such for the past two months that I had no time to spare outside. I am now, however, in a position to continue my pharmaceutical work, and, providing the time is not too short, should be pleased to work on the belladonna or anything else which will be of benefit to your firm and myself. The benefit to me is the experience and pleasure I derive from such work. I have been engaged in analytical chemistry with eastern firms for several years, and have but very recently came here. Any aid that I can give you will be cheerfully given.

Very respectfully, THORN SMITH.

CITY OF ST. LOUIS,
HEALTH DEPARTMENT.

ST. LOUIS, MO., Dec. 16, 1898.

Messrs. Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—I have been much interested in the "belladonna plaster controversy," and have read with interest your criticisms in Red Cross Notes

If your offer of $500 for a plaster test is likely to be open beyond January 1, 1899, I would like to know it, and the particulars as to what is wanted; also a sample of India rubber plaster mass. I suppose the composition of the latter is your secret, but if not inconsistent with that fact and the conditions of the competitive effort to produce a satisfactory test, I would like to know if you will name a solvent that will readily dissolve it. While the United States Pharmacopeia calls for 20 per cent. of extract in the plaster, it does not designate the alkaloid strength of the extract. With the solvent prescribed for making the extract [alcohol (spr. gr. 0.820) two volums and water one volume] if we treat good average commercial samples of the leaves, keeping the solvent the same to the end of the process—the yield of alc. extract of bella. leaves will average 22 per cent. as ordinarily made. The average yield of atropia from the leaves is usually given as 0.44 per cent. or 2 per cent. in the extract made by U. S. P. directions. As the amount of moisture left in the extract will vary with different conceptions as to what fulfils the Pharmacopeial requirement of a "pillular consistence," accuracy would require that it be evaporated until its weight is a definite fraction of the weight of leaves from which it is made. The best practice, in my opinion, is to evaporate to 1-5 the weight of the leaves. Its per cent. of atropia then should be 5 times that of the leaves which, in my experience, will vary little from 0.4 per cent. We have then alkaloidal strength of leaves 0.4 per cent.; of extract 0.4x5-2.00 per cent. The alkaloidal strength of the plaster on this basis should be the same as that of the leaves, *i. e.*, 0.4 per cent., and I believe this is the standard which should be accepted until definitely named in the Pharmacopeia.

As the percentage of alkaloids in the leaves will vary with their dryness, time of gathering, locality of growth, etc., it might be worth while to secure specimens from several reliable sources and assay them for atropine. My belief, founded on considerable experience, is that it will vary little, if any, from 0.4 per cent.

I have discussed this at length, because, unless you recognize a definite alkaloid strength for belladonna plasters, it will be impossible to fulfill the conditions to win the reward for a practicable plaster test set forth on page 10 of your Notes.

Should be pleased to hear from you further if this matter is not solved to your satisfaction before receiving this.

Respectfully, ALBERT MERRELL, M. D.,
Member St. Louis Board of Health.

Iodoform Without Odor

The "Skunk of Surgery" Banished

After years of labor we announce the attainment of the important results of being able to place before the world of surgery, Iodoform free from odor. This is not a mixture or a new substitute for Iodoform, but a condensation product of ordinary Iodoform (CHI_3), with the full equivalent of Iodine and having all the characteristics and properties of the ordinary substance, except odor.

This new Iodoform: Iodoform Johnson, has been submitted to the leading surgical, bacteriological and chemical authorities who report as having found this to be identical with ordinary Iodoform, in its chemical, physiological, antiseptic and therapeutic properties.

In order to distinguish this preparation from the ordinary Iodoform and prevent confusion with the numerous Iodoform substitutes, it is to be designated as Iodoform Johnson—Odorless.

Preliminary literature will be sent on request to any address—a sample for testing will be sent any hospital or practicing surgeon on request.

JOHNSON & JOHNSON

New Brunswick, N. J.

IODOFORM WITHOUT ODOR

ANALYSIS OF IODOFORM JOHNSON—ODORLESS.

BY PROF. SAMUEL P. SADTLER, PH. D.

Author of "A Hand-Book of Chemical Experimentation" and chemical editor of the "United States Dispensatory," fellow of the chemical societies of London and Berlin, of the Society of Chemical Industry, professor of organic and industrial chemistry in the University of Pennsylvania and of chemistry in the Philadelphia College of Pharmacy, etc.

SAMUEL P. SADTLER, PH. D.,
Consulting Chemist and Expert,
PHILADELPHIA, Feb. 8, 1899.

Johnson & Johnson, New Brunswick, N. J.:

Gentlemen—At your request I have made a chemical analysis of the Iodoform Johnson Odorless which you recently submitted to me, determined its physical characters, such as melting point and solubility, and compared it with commercial samples of iodoform such as are at present in the market.

The preparation is a pale buff-colored powder, but can be crystallized out of alcohol in tufts of yellowish-white crystals of definite form.

It melts at 188° C. It is insoluble in water, either hot or cold; slightly soluble in cold alcohol; readily in the same when heated; is readily soluble in acetone, ether, chloroform and carbon disulphide; insoluble in benzine and glacial acid. It is unaffected by hydrochloric, sulphuric or nitric acids in the cold, but decomposed by hot sulphuric or nitric acid. It is unaffected by aqueous alkalies, whether hot or cold, but is decomposed by prolonged heating with alcoholic potash or soda. It was analyzed by saponifying with a large excess of alcoholic potash, heating with reflex condenser for one or two hours, evaporating off the alcohol, diluting with water, neutralizing exactly with nitric acid, precipitating with excess of silver nitrate and adding nitric acid. The precipitate of silver iodide was collected on a balanced filter, washed, dried at 130° C. and weighed. Odorless iodoform gave 95.20 per cent. iodine. The theoretical percentage of iodine in iodoform U. S. P. is 96.68. Two samples of iodoform from well known large chemical manufacturers of this city, taken from original unbroken packages, gave 94.84 and 95.32 per cent. respectively. A sample from my cabinet in large, well-formed crystals gave 95.98 per cent. of iodine. I remain Yours very truly,

SAM P. SADTLER.

This new product of our laboratories is not intended as a substitute for iodoform, but is a substance having the same chemical, physiological and antiseptic properties as iodoform, minus the objectionable odor.

CHEMICALLY.

Iodoform Johnson is an iodurate of carbon; its molecular constitution is similar to that of iodoform; its analogy can be seen by the following table:

IODOFORM.	IODOFORM JOHNSON—ODORLESS.
Theoretical per cent. Iodine.....96.68	Per Cent. Iodine 95.20
Actual per cent. Iodine.....95.00	

Iodoform Johnson is a light yellow powder; crystallizes in the form of yellow needles. Similarly with ordinary iodoform it is insoluble in water, but is readily soluble in chloroform, ether, benzine, acetone (insoluble in alcohol). Melting point, 192 C. (377 F). As with all compounds rich in iodine, it is sensitive to light, and for this reason should be kept in amber jars. (It is to be handled in the same way as ordinary iodoform.) It is inodorous, having no trace of the pungent nauseating repulsive odor of iodoform.

ACTION AND USES.

The action and uses of Iodoform Johnson are identical with those of iodoform U. S. P. It gives the identical physiological, antiseptic, therapeutic results; it is to be used by the same methods and in the same dosage. It may be prepared for application the same as ordinary iodoform in solution, powder, ointment, paste, pills, suppositories, etc. It possesses the added advantage of more pronounced cicatrization, less tendency to produce irritation and toxic symptoms, but above all being inodorous, does not produce disturbance of the stomach, nerves nor possess any of the highly objectionable features which follow the ordinary use of this drug. This product should not be confused with many substitutes for iodoform now on the market, but must be considered as identical with iodoform, except for odor.

Price, 50 cents per ounce to physicians.

JOHNSON & JOHNSON,
New Brunswick, N. J.

Dr E. Bryce Osborn 10/2-98
Cleburne Texas

Johnson & Johnson,
New Brunswick, N.J.
Gentlemen:- Please send me sample
of your Sterilized sutures, as
per your offer on page 16 of
Red Cross Notes. Series "A" 1898
The more organs goods in
use the more successful our
surgical work
Truly yours
DRS. J. D. & E. B. OSBORN
per E.B. Osborn

KRESAMIN BANDAGE—A NON-IRRITANT ANTISEPTIC DRESSING.

Dr. Heinrich Eckstein, in the *Therap. Monatshefte*, speaks very highly of Kresamin as an antiseptic dressing, it being so free from irritating and inflammatory properties, contrary to most antiseptics in use. His method of employing it is by means of bandages saturated with a solution of the strength of 1:400 to 1:4000. He also recommends Kresamin ointment or Kresamin plasters. He sums up his experience with Kresamin as follows:

1. Kresamin has proved to be, according to Schœffer, a preparation of the highest antiseptic and disinfectant value, and my experiments prove that it excels the phenol preparations.

2. It has marked penetrating properties, and is hence a valuable tissue disinfectant.

3. In practical use—besides the above-mentioned advantages—it is non-irritant.

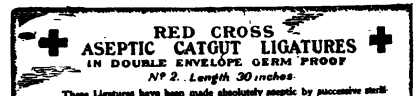
4. The preparation is very useful in the treatment of many skin affections, especially in the after treatment of lupus.

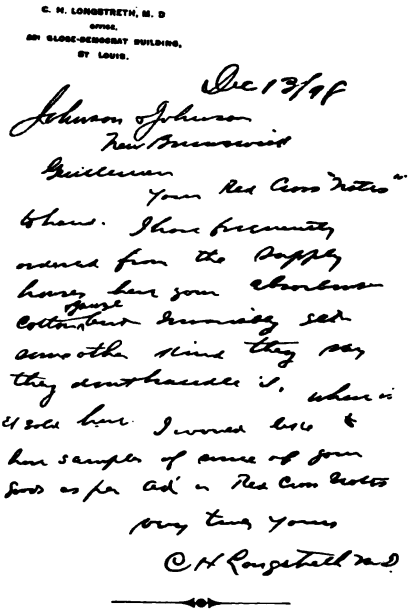
MOUSE TYPHUS.

The Austrian government has made arrangements to exterminate the mice in lower Austria by inoculating mice with Loeffler's mouse typhus bacillus.

A BULLET IN THE HEART FOR THIRTY-SEVEN YEARS.

A man recently died of cancer in Ohio, who claimed that he had a bullet in his heart which he had carried since he was shot by a bushwhacker in the civil war, and he requested that after his death an autopsy be made. The autopsy was made by Dr. O. B. Beer, who reports, in the Cincin. Lancet-Clinic, that he found the bullet in the heart as claimed. It had entered the left chest, and passing through the left lung entered the left ventricle where it was found 37 years afterwards.


RED CROSS
ASEPTIC CATGUT LIGATURES
IN DOUBLE ENVELOPE GERM PROOF
No 2. Length 30 inches
These Ligatures have been made absolutely aseptic by successive sterilizations, including boiling in Cumol Compound at 320-340 degrees.
CAUTION—To prevent infection, disinfected hands or forceps should be used to open the inner envelope.
JOHNSON'S ASEPTIC LABORATORIES NEW BRUNSWICK N J



C. H. LONGSTRETH, M. D
OFFICE,
8TH GLOBE-DEMOCRAT BUILDING,
ST. LOUIS.

Dec 13/95

Johnson & Johnson
New Brunswick

Gentlemen Your Red Cross Notes
& hand. Shall accurately
ordered from the supply
house, but your absence
Judge
Cottenham seemingly set
across the mine they say
they don't handle it. when I
see him I will ask
him sample of some of your
goods as per ad in Red Cross Notes

very truly yours
C H Longstreth M.D

BILE AS AN ANTIDOTE NOT A NEW DISCOVERY.

In a recent number of the South African Medical Journal, Dr. J. H. Meiring Beck publishes a letter in which he states that, while in conversation with a friend recently, he incidentally remarked upon the late discovery of Prof. T. Fraser that snake-bile is an antidote for snake-bite. He was staggered, he says, when his friend replied, "Yes, I have known that for over 20 years, and have recommended it many times to friends in cases of snake-bite." When asked for an explanation he replied that he got his information about the use of bile as an antidote for snake-bite from a letter written by S. B. Higgins in 1870, and which he saw published in 1876 in the European Mail. To corroborate this statement, he produced a copy of the letter. The letter is published in full in the August number of the South African Medical Journal. The writer's theory was that "all animal poisons have their specific antidotes in the gall of the animal or reptile in which these poisons exist." The writer then says: "The bite of the cobra, or any other poisonous snake or reptile can be cured by administering a few drops of a preparation of the gall of the cobra." He then gives the method of preparing it and the dose necessary, 5 drops (no more) in a half tumbler-full of pure water, well mixed, given in tablespoonful doses every three or five minutes till the whole is taken. In curing over 50 cases he says he never had to repeat the dose, and has never lost a case.

Thus, over a quarter of a century ago, says Dr. Beck, the writer of this letter, it appears, arrived at a generalization which is being corroborated by recent scientific research.

Fraser's work shows this to be true for snake poison, and Koch's work on rinderpest would seem to indicate a probable extension of the principle to organic poisons introduced, like the rinderpest germ, from without. Dr. Beck concludes by saying: "I must confess I should, after this, like to see *e. g.*, typhoid fever subjected to experimental treatment with bile from affected persons, and other specific fevers in the same way with their particular biles."

As I have had the pleasure of seeing you make belladonna plaster and gauzes, I know all you say is correct, and, as a druggist of thirty years' experience, will say that J. & J. Belladonna Plaster gives better satisfaction than any that I ever have handled.

E. R. GATCHEL, Druggist

Philadelphia, Pa.

LORENZO N GROSVENOR M D
2714 KENMORE AVENUE
CHICAGO

Dec 14/98

Johnson & Johnson
New Brunswick N.J.

Dear Sirs —
Your Red Cross Notes are so interesting that I want you to send a full set from the beginning, also monographs, booklets, & other printed matter Past & Future to Library of the also to

CHICAGO HOMEOPATHIC MEDICAL COLLEGE,
Wood & York Sts
(Chicago).
Ill.

LORENZO N GROSVENOR M D
2714 KENMORE AVENUE,
CHICAGO.

& accept my thanks. —

MONTICILLO, IND., Nov. 19, 1898.

Messrs. Johnson & Johnson:

Dear Sirs:—For several months I have found numbers of your "Red Cross Notes" here at the store and have become very much interested in them, and as your salesman, Mr. W. J. Walters, was here this morning I asked him, and he told me to drop you a card asking you to put my name on the roll and that you would send me a copy of the "Red Cross Notes" each month. Please add my name and oblige,

Yours truly,

P. O. Box 344. FRANK L. TOWNSLEY.

ROMEO, MICH., Nov. 30, 1898.

Gentlemen:—I have been very much pleased with "Red Cross Notes." I always look them over with pleasure, and believe they are welcomed by many who do not take the time to acknowledge the same.

Kindly yours,

ISAAC DOUGLASS.

CAMPBELL HILL, ILL., Nov. 17, 1898.

Messrs. Johnson & Johnson:

Gentlemen:—A few days ago I received a copy of "Red Cross Notes" which I perused with interest. Though a '98 graduate, my armamentarium now contains absorbent cotton, isinglass and adhesive plasters with the red cross on the labels. Am glad I commenced with materials which the "old doctors" regard so favorably. Would be pleased to have "Red Cross Notes" sent to my address regularly. Samples of digestive tablets and aseptic ligatures would be appreciated.

Yours truly.

J. S. CLELAND, B. S., M. D.

ST. LOUIS, MO., Dec. 13, 1898.

Dear Sirs:—"Red Cross Notes" received O. K., and will be pleased to receive "Red Cross Notes" and such monographs, booklets and other publications as it may please you to send, as I want to stay abreast of the times.

Yours etc.,

233 S. Jefferson Ave. E. V. ROWE, M. D.

So long as you maintain the present high standard of your goods I propose to handle them regardless of the published results of others.

Very truly,

T. A. CHEATHAM

Macon, Ga. LAMAR, CHEATHAM & CO.

NEW BOOKS.

KING'S AMERICAN DISPENSATORY.—Rewritten and Enlarged, by Harvey W. Felter, M. D., Adjunct-Professor of Chemistry in the Eclectic Medical Institute, Cincinnati, O., and John Uri Lloyd, Ph. M., Professor of Chemistry and Pharmacy in the Eclectic Medical Institute, Cincinnati, O. Two volume edition. Price, per volume, postpaid: Cloth, $4.50; Sheep, $5. Volume 1 ready. Cincinnati, O.; The Ohio Valley Co.

This work is a witness to the fact that sectarianism in medicine is a thing of the past and that the "Modern School of Scientific Medicine" is not a dream.

Although issued under the authority of of the National Eclectic Medical Association, there is not a drug mentioned that is not liable to be used by any or all "pathies." There is much information not to be found in any of the other dispensatories.

The old and the "newer" remedies, synthetic or otherwise, as well as many of semi-professional proprietary compounds and patented chemicals are recorded with such values as have been reported in medical literature. The first volume begins with "Abies Canadensis" and ends with "Fumaria" and contains the most useful and interesting information as to every drug named, together with the formulas of the U. S. P., the National Formalary and such others as are liable to be of service.

The information regarding American medicinal plants is especially valuable. We cannot refrain from noting that in treating the drug belladonna, the authors have really given an abridged edition of the monograph "Belladonna Illustrated" issued by Johnson & Johnson. They say: "The following excellent descriptions with illustrations are kindly allowed for publication by Johnson & Johnson, being extracts from a monograph on belladonna, edited by Dr. F. B. Kilmer." This is in corroboration of the often repeated statement that the monograph referred to was the best book ever written on belladonna.

Of the general character of the work or as to the illustrations, type work and matter, there is much to commend, it is a credit to the association that stands as its sponsor, and vindicates the good opinion all have of Prof. John U. Lloyd, and his associate Prof. Felter; the work is well done. It is probable that the physician or pharmacist will find that "King's American Dispensatory" is most useful in every day work. It is a necessary work to one who wishes to keep up with the times.

ELLICOTT CITY, MD., Dec. 19, 1898.

Gentlemen:—Some time since, in response to a postal from you, I requested my name to be placed on your mailing list for the regular issue of "Red Cross Notes." I look forward for them with great pleasure, and if I have missed receiving any, would you kindly supply the missing numbers, and place my name on your regular mailing list. Yours fraternally,

ISAAC S. MARTIN, M. D.

BLISTERING . . . .
TIME TABLE . . .

CANTHOS
2 TO 4 HOURS

U. S. P. Cantharidal Cerate
6 TO 10 HOURS

French Blister Plaster
6 TO 12 HOURS

Rubber Blister Plaster
6 TO 12 HOURS

FRANCIS R. SHERWOOD, M. D.
70 E. MADISON STREET
CHICAGO.

Dec. 1st, 1898.

Messrs. Johnson & Johnson,
New Brunswic, New Jersey.

Dear Sirs:--I am pleased to acknowledge receipt of your red cross notes which contain very interesting matter. I use your surgical dressings and am pleased to state that I consider them perfectly reliable. I have used them in my surgical work outside of the hospital and have always found them up to the standard claimed for them- good, natural, reliable and absolutely aseptic.

Yours very respectfully,
F R Sherwood
Professor of Anatomy College of Physicians & Surgeons medical department of Ill. University
Professor of Surgery Chicago Clinical School.

WOOD-FIBRE SPLINTS.

At the last meeting of the New York County Medical Association, says the *Med. Record*, Dr. Edward A. Tracy of Boston, read a paper on the use of wood-fibre splints, and exhibited a number of samples. The splint is of wood-fibre reinforced by gauze. It is made in large sheets of wood-pulp, suitably pressed and shaped. The fixation is obtained by moulding a properly shaped piece of the material on the limb, and then bandaging it. It is porous and more easily manipulated than leather. It is applied directly to the skin without padding. He exhibited a splint made in two lateral pieces which had been worn for eight months in a case of tuberculous joint disease. It is removable, and therefore less dangerous than plaster of Paris, and has many other advantages over plaster.

THAT GREAT FORWARD STEP

"The introduction of Linton Moist Gauze Dressings marks the beginning of antiseptic surgery in this country. It was the first great forward step from the original Lister type of dressings."—*Red Cross Notes.*

Linton Moist Gauze Dressings have kept step with most advanced surgical practice.

REDUCED PRICE OF PAPOID.

The apparent high price of Papoid Powder has hitherto been the sole objection raised against its general use.

This objection has been more apparent than real, even when compared with the cheaper grades of pepsin.

The dose of pepsin is from five to ten times that of Papoid; consequently Papoid at $4 per ounce is as cheap, dose for dose, as pepsin at 50 cents per ounce.

Papoid must always be an expensive drug. It is produced in Germany solely by one maker. After years of labor the selling agents in this country are happy to announce that they have been able to secure a material reduction of the price of Papoid and its preparations.

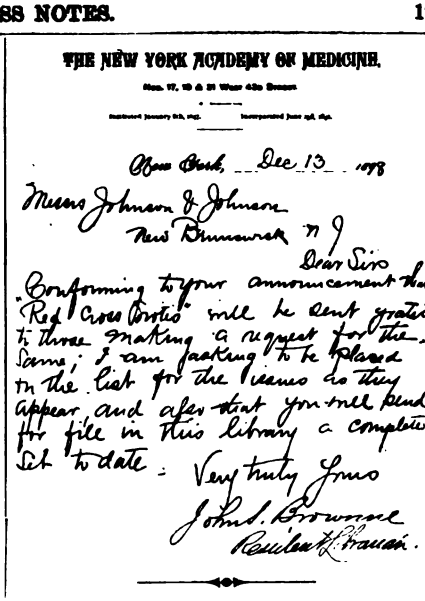
This reduction has been secured by reason of improved facilities for production and by the consequent increased consumption.

The reduced prices are as follows:

Papoid Powder, old price, $3.50 per ounce; new price, $2.20 per ounce. This is a reduction of $1.30 per ounce.

Johnson's Digestive Tablets (formerly Papoid Soda), old price, $15 per dozen for bottles of 100 tablets; reduced price, $9 per dozen for bottles containing 150 tablets.

This reduction is made without in any measure sacrificing the high standard of efficiency for which these preparations are noted.


THE NEW YORK ACADEMY OF MEDICINE.

New York, Dec 13 1898

Messrs Johnson & Johnson
New Brunswick N J

Dear Sirs

Conforming to your announcement that Red Cross Notes will be sent gratis to those making a request for the same, I am asking to be placed on the list for the issues as they appear and after that you will send for file in this library a complete set to date. Very truly Yours

John S. Billings
Librarian

CORNWALL-ON-HUDSON, N. Y., Nov. 30, 1898.

Messrs. Johnson & Johnson:

Gentlemen:—In using some of your rubber adhesive plaster lately, I found its adhesive properties good, but I was much annoyed at being unable even with a *full hour's* soaking with alcohol—by sopping it on with a mop—to remove it. It was a two inch roll with red ends. How do you remove it?

Very truly yours,

L. D. HARRISON, M. D.

Some people complain that adhesive plaster is not adhesive enough; this complaint is that it is too sticky. The mistake Dr. Harrison made was the use of alcohol; this increased the adhesiveness. Cold water is the best application to be used in removing any rubber adhesive plaster.

I think the only justification you need is the goods themselves. I am quite sure they can stand the shock of attack from any other house in existence. Such methods as those recently resorted to always fall short of the intention in mind. It will reflect back on them and do the very opposite of the thing they desire. I am pleased to assure you that most physicians in my neighborhood specify J. & J.

F. W. E. STEDEM, Pharmaceutical Chemist

Philadelphia, Pa.

THE TEETH; THEIR DAILY CARE

BY B. G. SIMMONS

It is my purpose to give you an article upon this subject that shall cover the entire ground, yet no more than is really necessary. I will do this more in the nature of a "talk," and will consider that my reader is a patient sitting in my office and one in whom I take especial interest. I will give you the best advice that I am able to, and will give it conscientiously and honestly.

It seems a most opportune time for something practical and reliable upon this subject. There have been a variety of small pamphlets given to the public of late that have been written and put out for the sole purpose of advertising some patent or proprietary preparation for the mouth and teeth, and, in every case that I have noticed, the author has ignored matters of importance in the care of the teeth in order to push forward the preparation that it was his mission to advertise, and, in some cases, giving really harmful advice. Without further preamble, we will at once take up the subject in hand. To begin with, CLEANLINESS is the first and most important thing. If *absolute* cleanliness were possible the problem would be solved. To attain this condition as nearly as possible is what we must try to do.

Of course a capable and intelligent dentist is indispensable. It is presumed that you already have such a one. The dental chair is no longer to be dreaded as it was in years gone by, and you must not be afraid to go frequently—twice a year at least—and have your teeth carefully examined to avoid letting anything get too far along that is necessary to be done. Taking for example the case of a child. Start the child right (or better still, start the child's mother right) and, with proper care at home, there will be very little for the dentist to do and what he does will be successful. Now as to dental caries or what is more commonly called decay in the teeth. There is positive evidence that this is a more or less contagious disease. Nonsense! you will say, that is "too big a one." Nevertheless, it is a proven fact. Caries is now generally conceded to be produced by organic germs. We know that the decomposition of particles of food lodging about the teeth is in accord with decomposition in general. It is accomplished by the life process of an organic ferment. Starting with this, the subject has been most thoroughly investigated. Culture mediums were infected by particles of decayed dentine. Care was taken throughout the experiment, and the results obtained proved beyond doubt the presence of an organic ferment capable of continuous propagation of its kind; a living ferment capable of acting upon sound dentine where it could find proper lodgment. Did you say "hold on!" Well possibly I did get in a little too deep for an article of this kind, but I would like to say much more in the same line; something about the number of pounds of decaying bone in an overcrowded school room, with the many pairs of bellows blowing hot moist air over it into the room, how school teachers are more prone to dental caries than people of any other profession, etc., but I'll stop. No, it's not such a horrible thing. I didn't mean to frighten you. This can be very nearly if not entirely overcome by CLEANLINESS. And cleanliness is the remedy, whether we accept the theory of tooth structure breaking down through the action of micro-organisms or by the older theory of vegetable and mineral acids chemically

produced. The first thing to be considered under this head is, of course, the brush. Let it be a good one; or, rather, let it be two or three good ones. Cheap brushes shed their plumage. Tooth brush bristles when swallowed are conducive to appendicitis and appendicitis is, to say the least, to be discouraged. Don't have the brush too harsh, nor yet too soft—just that happy medium that will be comfortable and do good work in cleaning. The teeth should be brushed twice a day. Upon rising in the morning for decency's sake, and upon retiring at night for your own sake.

In addition to brushing across the teeth—which simply cleans their outer surfaces—be careful (at the night cleaning particularly) to brush them UP AND DOWN, with a rolling motion, so that the bristles penetrate as far as possible between the teeth. This is important. For this purpose I would recommend a brush with bristles of different lengths. One of the shape known as "Prophylactic" is particularly effective.

Do not forget that the inner surfaces are to be thoroughly brushed too, also that the last molar is to receive just as much attention as the incisors. The suggestion that you have two or three brushes in use at a time is not only on account of the variety in shapes, but a brush will be found to be much more effective if it has time to thoroughly dry out before being used again, and will be more durable. As to dentifrices—well, some of them are all right, some I am opposed to. For the morning cleaning I like a little good, *mild*, light-colored soap and frequently some precipitated chalk, the finest grade than can be had. The manufactured tooth powders are all right, if preferred, and to many may be more agreeable in taste—this is an advantage in the case of children. Don't use anything that is at all gritty, such as powdered pumice or soaps containing it. Charcoal is likewise injurious. Of liquid dentifrices I am a little shy—some of them, by test, show an acid reaction; to these I am decidedly opposed, and have known cases of chemical abrasion (grooves across the face of the teeth near the gum) seemingly traceable to this cause. There is a preparation called Zonweiss that is particularly good and in one respect is certainly preferable, even to chalk, that is, that it is soluble, and any particles of it left under the margin of the gum are dissolved by the saliva and carried away. It has also the advantage of being particularly agreeable to the taste. For the night brushing, clear water or a little soap with it will be sufficient. I would not advise using powder oftener than once a day.

The next thing to be considered is the use of dental floss silk between the teeth, and I cannot lay too great stress upon the value of this one thing as a means of preserving the teeth. As I said before, the brush is necessary for common decency, but the systematic use of dental floss is the most important thing of all to prevent decay. You will be surprised the first time you use it at the amount of debris that you will remove from between your teeth. I firmly believe that with the regular use of dental floss and by rinsing the mouth thoroughly with an antiseptic solution, after brushing night and morning, that dental caries would be comparatively rare, and particularly people who have a number of fillings in their mouths would find that their fillings would stand permanently, where otherwise they would have to be frequently replaced, and eventually the teeth lost. Dental floss silk will go between the teeth where neither the brush nor a toothpick will go. Speaking of toothpicks, I was asked the other day if I advised the use of wood toothpicks. Certainly you had better use a wood toothpick than to let food stay between your teeth. In public? Certainly not. You know better than that. At the table? Well if in extreme pain, yes—with your mouth

protected by your napkin, but if you are constantly troubled in this way go to your dentist, and have the tooth or the "space" attended to. If floss silk catches upon any rough edge between your teeth have that point examined. The splinters that frequently break off from wood toothpicks are sometimes injurious, to say nothing of being terribly exasperating. Cheap ones are abominable. The best are, to say the least, unsatisfactory except for occasional use. Dental floss silk is far preferable and, so far as convenience is concerned, now that it can be obtained on the little flat pocket holders at a very low price, it has every advantage over toothpicks, even for pocket use. Dental floss can be obtained on spools of twelve and twenty-four yards—waxed or plain either from a druggist or any dealer in dental supplies. The waxed is preferable for general use.

There are several different makes and they are nearly all good, though I have found some of late that have lacked strength and softness combined. One brand that I have invariably found good, and perhaps the best, has a little red cross on the end of the spool. That is the name of it in fact. It is manufactured by one of the largest firms in the country dealing in aseptic goods and surgical dressings, but it would perhaps, be out of place to mention their names in an article of this kind. The "Pocket Floss" is put up on little thin flat decorated metal bobbins with a little device for cutting it off, and sells at retail for only ten cents. This is slightly more expensive than on the spool, but the convenience pays for the difference in price.

Now, the next thing to be considered is a thoroughly antiseptic mouth-wash, and by antiseptic I mean a wash that will absolutely destroy the germs of dental caries. That much abused word antiseptic is made to do duty many times where its use is entirely unwarranted and where its meaning is scarcely comprehended by the user.

The ingredients for this wash may be gotten of your druggist and mixed yourself or you may have it put up from a prescription.

There are a number of good formulas. Many of them depend upon Thymol, Eucalyptus, Gaultheria (Wintergreen), etc., for their antiseptic properties.

These are all of them healing and are pleasant to the taste, but their antiseptic properties are but slight, and I much prefer some of the phenol preparations. The one which I usually recommend is a simple solution of Camphenol and water. From one-half a teaspoonful to a scant teaspoonful in a pint of water. The phenol or tar taste in Camphenol is now entirely disguised and it has a most agreeable flavor.

I think this is decidedly the most effective of anything and it is *almost* as cheap as clear water, if that is any consideration to the patient. Get the Camphenol of your druggist or a dealer in dental supplies and mix it yourself. The mouth should be thoroughly rinsed with this after brushing night and morning. One particular advantage of Camphenol is that it is an absolute deodorizer. I have never found anything to compare with it for correcting an offensive breath, from whatever cause it may arise. There is, of course, no possibility that you will need it yourself for this trouble, but from my experience as a dentist, I know that some of your friends may. Speaking of offensive breath it is a trouble that is met with in a great variety of phases, from the slightest deviation from the normal state to that in which the breath is loaded with a large amount of excrementitious matter, but it is a condition of things that should never be allowed to go neglected in any case. We will involuntarily turn away from the fetid breath of even our most intimate friend. One may be beautiful in face and form, attractive in manner and fascinating in conversation, yet an offensive breath will destroy the charm of all these good

qualities. There may be some instances in which this affection is uncontrollable, but in the great majority of cases it is amenable to proper treatment. It may arise from derangement of the stomach and alimentary tract, and so need something more than mere local treatment, but even then the use of the antiseptic wash that I have suggested will be found temporarily beneficial, and if it arises, as is quite probable, from a vitiated condition of the mouth—the presence of soft tartar, accumulation of food or a diseased condition of the mucous membrane—it will, in connection with the other suggestions for cleanliness, effect a complete cure.

For catarrhal affections this same solution may be used with most happy results in the nasal passages and as a gargle. It makes the best general mouth wash for soft, spongy and bleeding gums of anything that I have ever used.

Now before I close, just one word with mothers in regard to the "sixth year molars." Bear in mind that when the child is about SIX years of age, there appears back of the temporary teeth the first PERMANENT molars, one on each side above and below, and they usually come into pretty bad company. The temporary teeth are undergoing the process of absorption. Many are decayed and the cavities and spaces are loaded with decomposing animal and vegetable matter. Unless great care as to cleanliness is observed at this time, these teeth are unable to resist this mass of decomposition, and are almost immediately attacked by decay. When this decay goes so far as to cause pain, the child is taken to a dentist and the mother is horrified to find that it is a "second tooth." She is sure it isn't because he hasn't lost any of his "first teeth." It is astonishing how few people know about these "sixth year" molars and that they are the large first molars of the permanent set. The numbers of them that are sacrificed on account of this lack of knowledge is countless, yet cleanliness and timely care would save them all. The use of floss silk and an antiseptic wash is all important in addition to the brush to secure this cleanliness.

I have now, I think, touched upon all the more important points in the care of the teeth. Just keep this fact in mind, that it is not the brush alone, it is not floss silk alone, it is not the antiseptic wash alone that is to save your teeth from caries, but all three combined. If these simple suggestions are followed and persevered in, the benefit derived compensates you many fold for the little time and labor that you have expended. In a short time it will become so much a part of your toilet that there will be little tendency to neglect it, but at first it will require some little exertion of the will and perseverance. I can only say keep it up—to-day, *to-morrow*, EVERY DAY. Then, by having your mouth looked over by your dentist occasionally, you will prevent a cavity of any size from getting started, and even if there should be anything to do, it would be so slight an operation that it would neither give pain to your nerves or your pocketbook. If any are benefited by this advice I am amply repaid for giving it.

SUPPLEMENTARY NOTE.

BY JOHNSON & JOHNSON.

The floss silk with the red cross on the end of the spool referred to by the author of this article is Red Cross Aseptic Dental Floss manufactured by Johnson & Johnson and sold by dental supply dealers and druggists.

RED CROSS POCKET DENTAL FLOSS is put up on a flat decorated metal bobbin with cutting device. It contains ten yards of waxed silk, and sells for ten cents.

Camphenol (Johnson & Johnson), sold by druggists generally. Eight-ounce bottles, 25 cents.

OFFICE OF
C. H. WEBSTER,
PHARMACIST.

NORTHFIELD, MASS December 20, 1898.

Johnson & Johnson,

New Brunswick, N.J.

Gentlemen:--

We have read the controversy in the pharmaceutical papers regarding "Belladonna Plasters" The position taken by one of the leading plaster manufacturers is a disgrace to true business competition.

We have been in the drug business for many years, and have always intended to specify J.& J. goods in our orders. But sometimes we have neglected to do so, and occasionally get the goods of some other maker

Many of our customers, when we attempt to sell them makes they are not accustomed to having, object, as they want the same they have been using, and think we are attempting to foist an inferior make of goodson them.

In the eighteen years of our handling drugs, we do not remember ever having a complaint of the quality of the goods manufactured by you.

While we are willing to admit that there are other makes of surgical goods on the market that may be equal to J & J. goods, we KNOW that the belladonna plasters of your make have always given the best of satisfaction, and as long as the high quality is maintained, we shall continue to use them, and sell them, Smith's comparative list, notwithstanding.

Will you kindly put me on your mailing list for "Red Cross Notes."

Yours truly,

C. H. Webster

"American Made Plasters are the Best in the World."

—KOBERT

JOHNSON'S BELLADONNA PLASTERS ARE MADE IN AMERICA.

RED CROSS NOTES

BOSTON MEDICAL
OCT 7 1899
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SERIES TWO NUMBER SEVEN

JOHNSON & JOHNSON, NEW BRUNSWICK, N. J.

A Large Bottle

of Johnson's Digestive Tablets contains 150 Tablets. It is a Special Physicians' Size, and is by far the Cheaper way to buy.

A LARGE BOTTLE is handy for office use and for dispensing. Price to Physicians, $9.00 per dozen, 150 tablets in each bottle.

Send for literature and sample.

JOHNSON'S BELLADONNA PLASTER

is made of Belladonna firstly, secondly of Belladonna, and thirdly of Belladonna

NOTHING ELSE.

It has been fiercely attacked, and the attacks have increased its sale.

It has been tested by all kinds of chemists, and these tests have shown it to be a strictly U. S. P. plaster.

It is the standard Belladonna plaster all the world over.

RED CROSS NOTES

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SERIES II, No. 7. NEW BRUNSWICK, N. J. 1899.

IODOFORM WITHOUT THE ODOR.

This problem is one to which the brains and hands of the chemist have been directed since iodoform came into prominence as an adjunct of aseptic and antiseptic surgery. While many compounds have been offered as substitutes for this ill smelling drug, nothing, no matter at what price or under what conditions it may have been offered, has been found fit to displace this valuable, but odoriferous drug.

We are happy to announce that from a chemical point of view, we have reached the long-sought ideal. Reports already received have also satisfied us that from a chemical, physiological and therapeutic point of view, we have produced a substitute, possessing all the characteristics, and still incapable of producing the untoward effects arising from the odor and taste of the ordinary substance. These results seem to justify the vast amount of work which we have expended upon it, and it is certainly most gratifying to all concerned.

To produce the true iodoform without the odor or taste in very small quantities for scientific purposes has been comparatively easy, but to produce it on a commercial scale has involved greater problems; but we are pleased to announce that at last we have been successful in devising apparatus by which we can produce odorless iodoform containing the full equivalent of iodine on a large scale and furnish it at a price quite agreeing with the market price of the ordinary drug. Our product has been subjected to a series of most careful investigations by the most eminent chemists, bacteriologists and therapeutists, and the results have been so excellent and so uniformly good, that we are perfectly satisfied that the object which we have so long sought has been attained.

Iodoform Johnson is to all intents and purposes perfect iodoform, without either the peculiar smell or taste or drawbacks, real or imaginary, which are characteristic of iodoform as ordinarily prepared; and we believe that this most useful drug, having by our efforts been shorn of its loathsome properties, will receive renewed life, and that for it will be found new and most important uses.

We do not think that we go too far in saying that we believe that this is the first and only real improvement in the manufacture of iodoform since its first discovery by Sirrulas; and, further, we are confident in our belief that this improvement will rank in equal importance with the many improvements which have been made in antisepsis and asepsis in the last quarter of a century. We commend this product to our medical friends in all confidence, and with a feeling of great satisfaction, in that we have been able to present to them an important and useful adjunct to the practice of their profession.

JOHNSON & JOHNSON.

The next issue of Red Cross Notes will be devoted to the subject of Cotton—especially cotton for surgical uses. To receive Red Cross Notes regularly it is only necessary to send a request to that effect.

LANDMARKS IN THE HISTORY OF IODOFORM.

Iodoform was discovered in 1822 by an eminent French chemist and apothecary, George Dimon Sirrulas, while making some investigations upon certain bromine and iodine compounds.

At first nothing was known of its medical and antiseptic properties, and for several years it was nothing but a name. Soon, however, other French chemists investigated it, among them were Jean Baptiste Dumas and Dr. Adolph Bouchardot; the former, in 1834, establishing its chemical constitution, while the latter was among the first to apply it as a remedy.

Its virtue as a cure for skin diseases, bronchiocele, scrofulous enlargements, etc., were soon recognized, and in 1857 Dr. R. W. Glover of London reported upon its successful application for this purpose.

It was adopted as official in the United States Pharmacopeia of 1870.

It was used at first for internal use almost exclusively, but year after year its external application became more extensive; it was not, however, till about 1872, when the theories of Lister began to be considered seriously, that the great field of antisepsis brought it into its present state of usefulness. It was not, however, the first antiseptic to be used and, indeed, its great value as such was not recognized till Von Mosetig Moorhof, by his extensive experiments with it in 1879, called the attention of the medical profession to it.

In 1881 Prof. Billroth found it very useful in the treatment of tuberculosis wounds, and in his practice gradually extended its application from infected wounds to fresh ones.

It was probably about 1885 that iodoform, supported by a hard-earned reputation and the reports of such men as Gussenbauer, Von Konig, Hewry, Merkel, Teisrink, Faltson and Hofftman, came into general clinical use.

Since then it has grown in favor very rapidly; its probable consumption to-day is believed to be 180,000 pounds per annum.

It is probable that the highly offensive odor of iodoform was the great obstacle which militated against its early adoption. This odor has earned for it the title of the "Skunk of Surgery," and has precluded its use for many purposes.

Attempts to overcome the odor of iodoform have been the subject of extended research. A large amount of energy, money and skill have been expended in this direction, only resulting in a multitude of compounds exploited as substitutes for iodoform, all lacking the essential properties of the drug, and generally of little use to surgery, certainly not comparable with iodoform itself as an antiseptic or therapeutic agent.

The most striking landmark in the history of iodoform, rivalling in importance its introduction into modern surgery, an event which marks an era in the cycle of antisepsis, is the work of Johnson & Johnson, resulting in the production of an odorless iodoform identical in all its properties, chemical, antiseptic and therapeutic, with the iodoform whose history we have traced.

Such an event is the fulfilment of the long looked for wish of surgery, the elimination of the terrible stench from the most useful agent of antisepsis.

The history of iodoform, then, begins in the early days of the century; its progress is obscured by indifference and lack of knowledge as to its value, until the greatest of all events in the era of surgery, the rise of antisepsis. In spite of its inherent drawback, an unbearable odor, it becomes a most useful agent in dressing wounds.

At the close of the century is announced the crowning event—"Iodoform Johnson," odorless iodoform with all the characteristics (except the smell) that have made the odoriferous drug so conspicuous in the history of medicine.

THE CONSTITUTION OF IODOFORM JOHNSON.

In the most simple chemical compounds it is no easy task to assign to a substance its absolute formula. As an example, ordinary iodoform was for many years known as C_2, H. I_6, (some text books still retain this formula); to-day, we write it C. H. I_3, which is probably more correct.

The labors incidental to the installing of proper apparatus and devising processes for the preparation of this product have prevented any attempt to accurately define the molecular arrangements of its atoms.

It is very easy to construct a chemical formula on paper; one has only to keep his equations balanced, and they will roll out indefinitely. In attempting to prove that iodoform is C. H. I_3, many very excellent experimenters measure the iodine, which is easy to do; they likewise measure the carbon, which is also comparatively easy; the result thus far leaves a loss which is about equal to one atom of hydrogen. And thus is constructed the formula C. H. I_3. Iodoform Johnson may be said to be a condensation product of the ordinary iodoform C. H. I_3.

Our results have been corroborated by Prof. Sadtler in giving the content of iodine as 95.22, or very nearly the theoretical and fully equalling the practical per cent. of iodine in ordinary iodoform.

In our preliminary experiments we have assigned to this odorless product the formula C_2, I_4; we would, however, state that some of our experiments point to a possible formula of 2 (C_2, H I_4.) It is, however, of more practical moment to know that in iodine, content in chemical reaction in physiological characteristics, Iodoform Johnson is practically identical with ordinary iodoform, and we can at present only explain it by saying that in the arrangement of its constituent atoms the phenomena of objectionable odor is eliminated.

A NOTE ON ODORLESS IODOFORM.

Many substances have been brought out as substitutes for iodoform—it would accomplish no good purpose to review the long list—the fact is merely mentioned in order to direct attention to curious circumstances that they have uniformly failed to detract, to any extent, from the popularity of iodoform itself. It is very evident that iodoform must have special therapeutic qualities of a high order of merit for it to successfully hold its ground, against so many less odorless and more aesthetic rivals, in the minds and practice of modern surgeons. In other words, a surgeon who wants to use iodoform will demand iodoform, and will not be satisfied with, nor accept any substitute. It was in order to meet a very reasonable desire on the part of physicians (as well as their patients) for a diminution or mitigation of the peculiar odor, which at once was so pervasive and diffusive, so clinging and so suggestive, that chemists have essayed to solve the difficult task of obtaining an iodoform that, while it should be as free as possible from this only disadvantage, should yet retain all the well-established therapeutic properties of this valuable remedial agent.

Notices have appeared of late, in several of the pharmaceutical and medical journals of Europe, of the experimental production of an odorless iodoform (bi-iodoform or di-iodoform as one authority has called it), a German product. From the results of experiments, its effects appear to have been found like or identical with those of ordinary iodoform, that is, locally anesthetic and disinfectant, and internally alterative or antistrumous. It is particularly valuable as a "cicatrizant" in venereal ulcers, according to a recent French writer who has used it largely in venereal practice. He found that chancres are generally healed in from eighteen to twenty days, and that ordinary surgical or accidental wounds heal at least as promptly as with ordinary iodoform dressings. Internally it is well borne by the digestive organs

and causes neither pain nor irritation. Its absence of toxicity is shown by the fact that doses of 25 centigrammes per kilo, given hypodermically, to guinea-pigs produced no ill effects. It is used externally, either as a dusting powder or as an ointment; in either case, the dressings remain entirely without odor.

In this country Odorless Iodoform is manufactured by Johnson & Johnson, the well-known purveyors of Red Cross surgical dressings.

Dr. Samuel P. Sadtler, one of the editors of the United States Dispensatory, professor of chemistry in the Philadelphia College of Pharmacy, communicates the following facts with regard to the chemical and physical properties of Johnson's odorless iodoform (the chemical formula of which is still in doubt, but which by good authority has been stated provisionally as $2\,(C.\,H.\,I_4)$.

"The preparation, Johnson's Iodoform (Odorless), is a pale buff-colored powder, but can be obtained crystallized out of alcohol in tufts of very pale yellowish crystals of definite form.

"In 'Odorless Iodoform,' the percentage of iodine was found as the average of several closely-agreeing determinations to be 95.2.

"The theoretical percentage of iodine in Iodoform U. S. P., is 96.68.

"Two samples of iodoform from well-known large chemical manufacturers of this city, taken from original unbroken packages, gave 94.84 and 95.32 per cent. respectively. A sample from my cabinet in large, well formed crystals gave 95.98 per cent. of iodine."

It is a very interesting fact in connection with this very timely communication of Prof. Sadtler's, that the percentage of iodine is actually greater in Odorless Iodoform than in a commercial sample of ordinary iodoform obtained from a well-known chemical manufacturer. Being not volatile and only slightly soluble in the secretions from wounds, it has been observed that it can be used in smaller quantities than ordinary iodoform and yet equally good results be obtained. From comparative experiments made in the surgical wards of the Pennsylvania Hospital and other prominent general hospitals, it has been found to answer the purpose equally as well as the older form and it is noticed that there is less "hospital smell" than under former circumstances. It will prove a veritable boon to the genito-urinary surgeons and to the aural specialists, and will entirely remove the complaint made by the latter that when they have used iodoform for topical applications to the ear, their patients were liable to be mistaken for patrons of the gentlemen representing the former specialty. The introduction of Odorless Iodoform also does away with the time-honored expedient of tying some iodoform gauze around a patient's index finger in order to distract attention of a curious community from the real source of surgical offense in a more secluded portion of the body.

—Medical Bulletin, Philadelphia.

TEST FOR ESTIMATION OF THE AMOUNT OF IODINE IN IODOFORM.

The following test, while not as accurate as many other processes, is sufficiently approximate for practical purposes.

Put in a narrow test tube about six inches long, one-half gram of iodoform stoppering the tube with cotton. Apply heat to the bottom of the test tube until the product is melted or until the bottom of the tube is red hot, that is to say, until the iodine is completely decomposed, and the iodine vapors fill the tube and crystallize upon the sides of the same. By an ocular comparison of the density of the vapors and the amount of crystals, a fairly accurate judgment may be formed as to the amount of iodine decomposed. Wash out the iodine with 10 C C of a 10 per cent. solution of potassium iodide in distilled water, then titrate the iodine by the use of decinormal sodium, hyposulphite volumetric solution, multiply the number of C C required to completely decolorize (using starch test solution as an indicator), by the factor 0.01265, this will give the amount of iodine in the sample.

This test is applicable to ordinary iodoform or to Iodoform Johnson—odorless.

CLINICAL REPORT—IODOFORM JOHNSON.

The report on preparation of iodoform (Johnson) is hereby submitted:

I find it to be odorless, tasteless, substance exactly similar in appearance to the ordinary trade iodoforms. Desiring to give it an impartial trial, I distributed the samples sent me among three physicians and surgeons, and their observations, with mine, here follow:

I. Multiply chancroid, man, age 35.

On third dressing wound was clean; granulations were bright red and bled easily. Healing taking place at edges.

II. Varicose ulcer, man, age 28.

On third dressing ulcer was clean, slough separated, healing taking place by third intention.

III. Circumcision in infant; gauze and powder used after operation, second dressing; no pus in wound.

Repair by first intention. No irritation on child's tender skin about wound from dressings.

IV. Chancroid; single—same as by 1.

V. Gauze dressing on hernia. Surgeon prefers sterilized gauzes on clean operating cases, but used iodoform (Johnson) by request.

Healed by first intention, no pus; no irritation of surrounding tissues.

VI. Chronic eczema—10 per cent. unguentum used.

Third application; lessened puritis; fissures closing; scaling less.

VII. Lacerated fingers—powder.

Third dressing; wound clean; granulations doing well.

The conclusions to be drawn are that the iodoform (Johnson) is equal in therapeutic effects in every way to the ordinary commercial iodoform.

(Signed)

FRANK F. CLARKE, M. D.

A NEW WHOOPING-COUGH BACILLUS.

The New York Med. Record calls attention to the fact that an Italian investigator, Dr. Vincenzi, claims to have discovered the specific pertussis microbe. The bacilli were found in the sputa of children suffering from whooping-cough, but after repeated experiment the doctor did not succeed in causing the same disease by inoculation in animals. It is, however, well known that whooping-cough never occurs in animals.

HUNTER McGUIRE, M. D.
8:30 A. M. TO 12 M.
STUART McGUIRE, M. D.
9 TO 11 A. M. 7 TO 8 P. M.
OFFICE, 913 EAST GRACE ST.
PRIVATE INFIRMARY—ST. LUKE'S HOME
RICHMOND, VA.

Richmond, Virginia,

February 3rd, 1899.

Messrs. Johnson & Johnson,

New Jersey.

Gentlemen:-

Please accept my thanks for the sample of odorless iodoform you were kind enough to send me sometime ago. I found its action similar, indeed so far as I could tell identical, with that of the ordinary iodoform. I will be very much obliged to you if you will send me some more samples of this product.

Very truly yours,

Hunter McGuire

Samuel P. Sadtler, Ph. D.,
Consulting Chemist and Expert,
1042 Drexel Building

Philadelphia, February 8th, 1899.

Johnson and Johnson
New Brunswick N.J.

Gentlemen:-

At your request, I have made a chemical analysis of the "Odorless Iodoform" which you recently submitted to me, determined its physical characters, such as melting point and solubility, and compared it with commercial samples of Iodoform such as are at present in the market.

The preparation, Johnson's Iodoform (odorless), is a pale buff-colored powder, but can be obtained crystallized out of alcohol in tufts of very pale yellowish crystals of definite form.

It melts at 186°C. It is insoluble in water, either hot or cold, slightly soluble in cold alcohol, readily in the same when heated, is readily soluble in acetone, ether, chloroform, and carbon disulphide, almost insoluble in benzine and glacial acetic acid. It is unaffected by hydrochloric, sulphuric or nitric acids in the cold but decomposed by hot sulphuric or nitric acid. It unaffected by aqueous alkalies whether hot or cold, but is decomposed by prolonged heating with alcoholic potash or soda.

It was analysed by saponifying with a large excess of alcoholic potash, heating with reflex condenser for one to two hours, evaporating off the alcohol, diluting with water, neutralizing exactly with nitric acid, precipitating with excess of silver nitrate and adding nitric acid. The precipitate of silver Iodide was collected on a balanced filter, washed, dried at 130°C., and weighed.

In "Odorless Iodoform" the percentage of Iodine was found as the average of several closely-agreeing determinations to be 95.2.

The theoretical percentage of Iodine in Iodoform U.S.P. is 96.68.

Two samples of Iodoform from well known large chemical manufacturers of this City, taken from original unbroken packages, gave 94.84 and 95.32 per cent. respectively.

A sample from my cabinet in large well formed crystals gave 95.98 per cent. of Iodine.

I remain, Yours very truly Sam'l P. Sadtler

Dr. A. Vander Veer,
Office 98 Eagle Street,
Hours, 6 to 9 A. M.
2 to 5 P. M.

Dictated. Albany, N Y. Feb. 10, 1899.

Messrs. Johnson & Johnson,

New Brunswick, N.J.

My dear sirs:-

I have been ill part of the winter and more than busy otherwise; therefore, I have not been able to give that attention to the odorless iodoform I had hoped to in order to write you intelligently. I am frank to say that whatever your conclusions are I believe they will be thoroughly correct, and I will be willing to abide by them.

Believe me,

Sincerely yours,

A. Vander Veer

Dr. J. B. Murphy,
Reliance Building,
Chicago. Feb. 8th. 1899.

Messrs. Johnson & Johnson,

Newbrunswick, N. J.

Gentlemen:-

The sample of odorless iodoform which you sent me was received. I used it on a number of cases with satisfaction. I am not in a position to pass an opinion as to whether it is valuable as iodoform It is very desirable that we should have an odorless iodoform and if its therapeutic effects are the same as the former iodoform it will be in great demand.

Yours truly,

J B Murphy

SCHOOL FOR ANALYSTS.

CANADIAN CHEMISTS TAKING LESSONS ON BELLADONNA PLASTERS.

The eminent J. Rutherford Hill of London, has stated that the discussions in these columns are "a liberal education on the subject of belladonna plasters."

The Canadian government is evidently profiting by his suggestion. As noted in our last issue, the Department of Inland Revenue concluded that they had made some errors in their former attempts to assay belladonna plasters, and would try it over again; to this end, they asked Johnson & Johnson to send them suggestions as to the best methods for examination of belladonna plasters, copies of literature issued by Johnson & Johnson, upon this subject.

In reply to this request from the Canadian government, the letter here following was submitted to the chief analyst, Thomas MacFarlane, Ottawa, Canada:

Feb. 16, '99.

Thomas MacFarlane, Chief Analyst,
Ottawa, Canada:

On January 26, 1899, we submitted to the department a statement regarding the report of belladonna plasters embodied in Bulletin No. 58, in which we expressed the belief that in this Bulletin injury has been done to the professional and business credit of several reputable manufacturers of belladonna plasters, and especially to ourselves. We expressed therein our conviction that the great variation of the several analyses was due either to the inexperience of the operators with belladonna plasters, or to the faulty methods employed by the analysts, and submitted therewith abundant proof to sustain our contention.

A letter from the Assistant Commissioner of Inland Revenue, dated Jan. 26th, informs us that the department had admitted the justice of our claims and decided to make further examination of belladonna plasters found in the Canadian market, in order to place itself right before the several manufacturers and the trade. We were also informed that steps will be taken in this second examination to see that no injustice is done to any manufacturer, and in order to obviate errors one analyst will perform all the operations.

We are also informed that your department desires to receive from us suggestions as to the best process for assaying belladonna plasters, and that the process used shall be one which shall be agreed upon between the department and ourselves. In accordance with this suggestion we submit herewith several processes for an assay of belladonna plasters which have been used in our laboratories, and either one of which, in the hands of competent analysts, will yield satisfactory results.

In our communication we called attention to the fact that a manufacturer of plasters, whose products are sold in Canada, compounds his plasters from hyoscyamus scopolia, that by an ordinary examination the alkaloids found in such plasters would be reported as those of belladonna; neither the Br. P. nor the U. S. P. recognize this drug. The formula for belladonna plaster Br. P. calls for the use of the extract of belladonna; the use of substitute drugs therefore seems inadmissible. This drug, hyoscyamus scopolia, is an adulterant or fraudulent substitute for genuine belladonna, used on account of its cheapness, and as by chemical examination preparations made from the same, show an apparently high percentage of alkaloid, it seems necessary that whatever method may be adopted these facts must be taken into account.

In the processes herewith given will be found methods which in our experience will make such a determination; it is probable that your own chemist may be able to add still others.

We also desire to call your attention to the fact that the trade in Canada demand belladonna plasters and other preparations made in accordance with the U. S. P., and that in accordance with such demand, plasters bearing our name and trade-mark will be found to conform to that standard, and are so sold. Latterly there has arisen a small demand for belladonna plasters made to conform to the Br. Pharmacopeia of 1898, and to meet this demand we supply

belladonna plasters containing the full amount of belladonna root, extract and its alkaloids as required by that authority, and such plasters bear a statement to this effect. We presume that the same remarks may apply to some of the other manufacturers. We have, therefore, to suggest:

1.—That processes be adopted by your department in the assay of belladonna plasters, which shall show whether the plasters now found in the Canadian market contain the true extract of belladonna, or are compounded from hyoscyamus or other substitute drugs for cheapness, or are filled with alkaloids for show in assay processes.

2.—The presence of an equivalent amount of alkaloids required by either the U. S. P. or the Br. Pharmacopeia, shall not be taken as conclusive proof that the plasters under examination conform to the Pharmacopeial standard.

3.—That the assay processes adopted shall be such as shall show

a.—The total amount of alkaloids found.

b.—Identify the alkaloids.

c.—In the case of alkaloids being found not belonging to true atropia belladonna, their probable source.

d.—The nature of any substitutes or adulterants used instead of the true atropia belladonna required by the Pharmacopeia.

4.—That in future your reports state in the case of plasters made in the United States and sold as conforming to the U. S. Pharmacopeia, whether they conform to that authority or not.

5.—That plasters sold as conforming to the Br. Pharmacopeia of 1898, shall be judged by that authority.

6.—That plasters made of drugs other than atropia belladonna expressly called for by the Pharmacopeia shall not be classed with true belladonna plasters, but shall be reported in accordance with their true contents.

In accordance with the suggestion of the department we send you herewith literature which we have issued upon the subject of belladonna and belladonna plasters.

As the assay of belladonna plasters is a subject which is intricate, and one in which inexperienced operators are liable to err, we shall be pleased to place the facilities of our laboratories at your disposal, and to give your analysts the benefits of our experience and the assistance of our chemists.

Respectfully submitted,
JOHNSON & JOHNSON.

Accompanying this letter was submitted copies of Red Cross Notes and other literature, issued by Johnson & Johnson, upon the subject of belladonna plasters; copies of the following papers:

"Process for Quantitative Separation from Belladonna Plasters," by Prof. A. B. Prescott.

"Difficulties in the Assay of Belladonna Plasters," by Bennett F. Davenport, Analytical and Consulting Chemist, Boston, Mass. See Red Cross Notes No. III, page 10.

"Process for Assay of Belladonna Plasters," suggested by Research Committee "D." U. S. P.

"A Series of Reactions for Atropine," by Alfred R. L. Dohme, Ph. D.

Together with the following:

BELLADONNA PLASTERS, EXAMINATION CONTRIBUTION FROM THE LABORATORIES OF JOHNSON & JOHNSON.

REACTIONS.

The first alkaloids crystallizing from the belladonna washings should melt at or near 114 C., and that from scopolia at or near 55 C.

When the alkaloids extracted from the belladonna are evaporated to dryness with fuming nitric acid the residue should turn violet in contact with alcoholic potassium hydrate.

Chromic acid mixture should turn the belladonna alkaloid into benzoic acid.

Cyanogen gas passed into an alcoholic solution of the belladonna alkaloid should give, on standing, a red color.

Glacial acetic acid and sulphuric acid should produce by prolonged warming of the belladonna alkaloids a greenish yellow fluorescence.

Sulphuric acid and chlorate of potash with the belladonna alkaloids should give a greenish blue color.

Scopolia contains a crystallizable substance called scopoletin that can be extracted from scopolia, but not from belladonna— at least, to any appreciable extent. It is fluorescence blue; can readily be identified in this way. It should melt at or near 198 C. This substance can be converted into di-methyl-aesculetin by the action of potassium hydrate and methyl iodide. Its melting point will then be 144 C.

From the scopolia can be taken scopolin, another crystallizable substance, and that can be converted into glucose and scopoletin by heating with dilute acids. The fluorescence and action on Fehling's solution will identify these.

The following reactions are stated by various authorities to be characteristic of the alkaloids of belladonna (or atropine) and those obtained from drugs which contain principally hyoscyamine.

When evaporated at a low temperature on a water bath of solution of belladonna in fuming nitric acid, adding to the residue one drop of solution of potash in alcohol, a beautiful violet coloration will follow which turns rapidly red.

A small fragment of belladonna alkaloids being dissolved in concentrated sulphuric acid, and the crystals of bicarbonate of potash allowed to come in contact with the liquid, will give a brilliant green color of chromoxide.

The sulphate of the alkaloids obtained from belladonna when ignited burn with a flash. Most of the sulphates of other alkaloids dissipate slowly upon burning. A solution of belladonna alkaloids with sodium nitrate shows a deep yellow color; by treating an aqueous solution of atropine with an alcoholic solution of picric acid, a yellow crystalline solution appears.

Atropine—neutralize with hydrochloric acid in aqueous solution and add gold chloride which precipitates the gold double salt

as an oily precipitate which becomes crystalline very soon, and when crystalline and after being dried at 105 degrees C. melts at 135-137 C. Hyoscyamine similarly treated yields an oily gold salt which also becomes crystalline, and when similarly dried melts at 160 degrees C., while hyoscine when similarly treated yields a gold double salt which is crystalline at once and melts at 196-198 degrees C. Other distinctive reactions are:

	Belladonna Alkaloids.	Hyoscyamus Alkaloids.
1—Crystal form	Rhombic prisms	Square Tablets
2—Melting point	115.5 deg. C.	108.5 deg. C.
3—Chloroplatinates melting point.	197-200 deg. C.	208 deg. C.
4—Chloraurates melting point.	135-137 deg. C. Yellow leaflets.	160 deg. C. Druse grouped
5—Picrates—		Needles—
6—Iodine in Potass. Iodide Solution	M. P. 175 deg. C. M. P. 161-163 deg. C. Brown oily precipitate becoming crystalline later.	Immediate crystalline precipitate.

To distinguish them when both may be present the microscope is best. Extract them and let them evaporate to free alkaloids on a glass slide. If rapidly crystallized A will appear in small feather-shaped crystals, while H will appear as small crosses, superimposed one upon the other; if slowly evaporated A will appear as prismatic needles and H as square tablets. The above can be found in Guareschi's "Einfuehring in Sas Studium der Alkaloide," translated by Kunz-Krause, Berlin, 1896.

BELLADONNA OR SCOPOLIA PLASTERS.

Method of determining whether a plaster is made from extract of belladonna, or extract of hyoscyamus scopolia.

Belladonna extract plaster.	Hyoscyamus scopolia extract plaster.
Cut the plasters into strips, weigh them, and put in 50 C. C. chloroform containing 10 drops ammonia, stir, and when mass is dissolved transfer both to another beaker, wash with 25 C. C. chloroform made alkaline with 5 drops ammonia, then precipitate the gum with the smallest possible quantity of strong alcohol, added drop by drop, stirring continuously to prevent the precipitated gum from carrying the alcohol with it.	Same—

COLOR INDICATION.

If the solution is of a clear brownish yellow color with very little fluorescence, belladonna extract is indicated.	If the solution is of very dark brown reddish color, with a very marked blue fluorescence, it indicates scopolia extract.

This color indication is very characteristic and may be verified by comparison of a solution of the extract of hyoscyamus scopolia or of true belladonna of approximate strength with the extract from plaster.

After complete precipitation of the gum, decant the liquid into a separatory funnel and add 25 C. C. water, acidulated with a 1.5-2 per cent. sulphuric acid, stir gently, pour off the chloroform and wash it with more acidulated water, until a drop of this solution gives no reaction with Mayer's re-agent. (The alkaloids of scopolia are much more easily extracted, and are more sensitive to Mayer's reagent than those of belladonna, and are thus indicated.)

PRECIPITATE TEST.

About three plasters of each brand should be used in this method.

Proceed as before with ammoniacal chloroform and acidulated water; take out the alkaloid in the water solution with ammoniacal ether; the alkaloid is all removed when the water gives no reaction with Mayer reagent. Evaporate the ether as rapidly as possible in a current of air, until all ether is removed. The temperature should not be above 55 degrees C.

When dry, add a very small quantity of alcohol and a little solution of bichloride of mercury; a whitish yellow precipitate will come down, which on boiling gives a dark shade of brown. Indication, alkaloids of belladonna.	If a yellow sticky mass appears on the side of the dish, it indicates alkaloids of hyoscyamus scopolia. Dissolve the residue in a test tube with alcohol; add an aqueous solution of bichloride of mercury; if a yellowish white precipitate which does not change color on standing or heating appears, it indicates the presence of the alkaloids of hyoscyamus scopolia.

Certain precautions have been found necessary in the use of this precipitate test, as follows:

Add to an alcoholic solution containing, say, from one-half to one milligramme of the suspected alkaloid or the alkaloidal substance obtained from either of the above complex mixtures, 2 C. C. of a 5 per cent. solution of corrosive sublimate and warm gently, if the suspected mixture contains the essential alkaloids from belladonna, a red or yellowish red precipitate will be produced.

Under the same circumstances, the alkaloids from hyoscyamus scopolia, a precipitate does not appear immediately, and when appearing is at first a yellowish white. The above reactions occur only in a solution of the alkaloids and not in that of their salts.

If the plaster contains both hyoscyamine and atropine, the alcoholic solution will give with mercury bichloride a precipitate of both, but on boiling the red precipitate, goes to the bottom rapidly, while the yellow separates and does not change color, very distinguishable from red precipitate. The proportion of the precipitates indicates the proportion.

POLARIMETER TEST.

In addition to the above fluorescence test and the color test, the following has been suggested: The solutions of the alkaloid from a plaster made from belladonna will polarize positive sufficiently to show that this is characteristic of the alkaloid. Comparison may be made by dissolving the alkaloids obtained from the extraction of belladonna leaf and root, will polarize the same as the alkaloid extracted from a plaster made of belladonna, while the alkaloid from extract of scopolia will polarize negative, as will also the alkaloid extract from plasters made of scopolia.

Prof. Joseph Bemrosē, analytical chemist, Montreal, has quite recently reported the use of this polarimeter test, as shown in the following:

ASSAY BELLADONNA PLASTERS.

By JOSEPH BEMROSE, F. I. C., F. C. S., Analytical and Consulting Chemist, Professor of Chemistry, Montreal College of Pharmacy.

Montreal, Dec. 28, 1898.

I have examined two samples of belladonna plasters marked Nos. 2405 and 2406, prepared by Johnson & Johnson, and two samples of belladonna plasters marked Nos. 2407 and 2408, prepared by Seabury & Johnson, and report as follows:

The plasters 2405-2406 (Johnson & Johnson) furnished clear yellow solutions, without fluorescence, from which the alkaloids were shaken out; the solutions by spontaneous evaporation leaving residues partly crystalline and partly as a yellow varnish, these were titrated with Mayer and with $\frac{N}{100}$ Soda (B. P., '98).

Ten grammes of extract of belladonna leaf (Eng.), after removing chlorophyll, fat, etc., furnished a clear yellow solution, without fluorescence; the same process left the alkaloid as a light yellow varnish, titration duplicate gave 0.907 per cent. of total alkaloids.

The plasters 2407-2408 (Seabury & Johnson), treated in the same way, furnish deep orange to red solutions, which showed a bluish fluorescence.

The fluid extract of scopolia furnished a deep orange to red liquid, with bluish fluorescence, from which ether removed white crystals with some yellowish varnish; by duplicate titration the percentage of alkaloids was found to be 0.405.

The scopolia root furnished an orange to red solution, with bluish fluorescence, from which ether removed a dark sticky mass; in duplicate titration gave 0.421 per cent. total alkaloids.

From one gramme of commercial atropine sulphate the alkaloid was removed, half of it was dissolved in alcohol at once, the other half was heated to 100 deg. C. for four hours, then dissolved; the first portion polarized slightly negative, the heated portion 0.54 in angular degrees.

The solutions obtained from the plasters 2405-2406 (Johnson & Johnson), polarized slightly positive, as also those from the belladonna extract; the solutions from the plasters 2407-2408 (Seabury & Johnson), polarized negative, also those from the scopolia extract and root.

J. BEMROSE.

The following correspondence has taken place in Canada:

Montreal, Can., March 11, 1899.

Prof. Harrison, London, Ont.:

Dear Sir—In a letter received a few days since from Mr. MacFarlane, Chief Analyst, Ottawa, he advises us that the coming analysis of belladonna plasters is to be conducted by you.

Our object in writing you now is to point out the fact that from statements made by

the manufacturers, and investigations made by Prof. Bemrose of this city, we have every reason to believe that in the late Bulletin No. 58, on belladonna plasters, the plasters which showed the highest percentage of alkaloids were not made of belladonna at all, but of scopolia carniolica root, while showing a large percentage of alkaloid. This, we understand, is cheaper than true belladonna, and also is thrown away as worthless by the manufacturers of atropine. Without entering into any discussion on this point, we wish to make a statement which we are sure will be endorsed by every medical man in Canada, viz:—that when he orders a belladonna plaster he wants a plaster made with belladonna, and not with some substitute, whether it costs half the price or double the price.

We therefore feel that in the interests of the medical profession who prescribe belladonna, and the people who use them, every means should be adopted in an analysis to show that belladonna is, or is not, used in the plasters which come under their notice, and all those in which extract of belladonna is not used are not entitled to be classed as belladonna plasters.

The process for distinguishing scopolia from belladonna, as used by Prof. Bennet F. Davenport of Boston, one of the highest authorities in the United States, Prof. Bemrose of Montreal, also copy of Prof. Bemrose's report, were forwarded to Ottawa with other papers, and we presume have been handed to you. If for any reason they have not reached you, kindly advise us and we will send you copies. We submit that in view of facts recently brought to light, no analysis will be satisfactory to the medical profession which does not clearly show sufficient proof that the extract used is nothing other than belladonna, and at any rate that it is, or is not, scopolia carniolica, for the detecting of which a definite process has been devised.

Yours truly,
GILMOUR BROS. & CO.

Montreal, Can., Mar. 13, 1899.

Prof. F. T. Harrison, London, Ont.:

Dear Sir—Since writing you on Saturday we are in receipt of a letter from our friends Messrs. Kerry, Watson & Co., of London, who have handled Johnson & Johnson's Belladonna Plasters for years, in which they speak of the injustice the recent Bulletin No. 58 on belladonna plasters has done to us as agents for Johnson & Johnson, and suggest our at once taking the matter up with the authorities, and London being their district they ask that we write you specially. This following so closely on Mr. MacFarlane's letter, referred to in our last, has prompted us to ask the chemist in charge of Johnson & Johnson's laboratories, to write us a letter setting forth such points in connection with the analysis of belladonna plasters as he may think of use, and this we will take the liberty of sending on to you.

Meantime we take the liberty of enclosing copy of the process used by Prof. Bemrose to distinguish between the use of pure extract of belladonna and scopolia carniolica in the preparation of a belladonna plaster. We also enclose copy of Red Cross Notes, No. 5, which gives our position so far as the late Government Bulletin is concerned. You have probably received copies of all these from Ottawa, but we take the liberty of enclosing them, as we think they show the very great need of special care and study in this work, if reliable and uniform results are to be obtained.

We take the liberty of pointing out that Johnson & Johnson's Belladonna Plasters, being made in the United States, and so labeled, are, as this implies, made to conform to the U. S. P. strength of belladonna. The standard for alkaloids in this plaster will be found the work of Messrs. Reynolds and Caspari herewith.

Since the issuing of the 1898 British Pharmacopeia, Johnson & Johnson have placed on this market plasters made to conform to British Pharmacopeia, 1898, in strength of belladonna, and so marked; we take the liberty of enclosing one, and would say that Canadian physicians can now obtain belladonna plasters U. S. P. strength, or Br. P. strength, whichever they consider most suitable. We are of opinion that a plaster made according to present Br. P. of true belladonna, would not be a safe one for general use as belladonna plasters are now used and sold, and would be liable to produce toxic effects, and therefore recommend the use of the U. S. P. as being all that is safe.

Yours truly,
GILMOUR BROS. & CO.

The following is from the chief analyst:

Laboratory of Inland Revenue Dept.,

Ottawa, 13th Mch., 1899.

Messrs. Johnson & Johnson,
New Brunswick, N. J.:

Dear Sirs—Your favor of 6th inst. was duly received, as well as the samples of plaster mass, which you were kind enough to send me. For the latter, as well as for the information contained in your letter, I am much obliged.

On 3d inst. I advised your agents in Montreal that the process of the Revisory Committee which you sent me, being essentially the same as that used by Mr. F. T. Harrison, Public Analyst, London, will continue to be used by him in analyzing the samples last collected.

Yours truly,
(Sig.) THOMAS MACFARLANE.

THE MICROBE OF VACCINA.

The London papers, says the New York Medical Record, state that Mr. Stanley Kent, of St. Thomas' Hospital, who has been working at vaccinia since 1893, has succeeded in discovering the specific organism upon which it depends. He has further prepared pure cultures of the germs, and has used them for vaccination. The discovery, it is contended, while being of high scientific interest, is of more importance from a practical point of view, as the possibility of using pure cultures for vaccination disposes of the chief argument of the anti-vaccinator, viz: that disease may be communicated to the children vaccinated by the use of impure lymph.

AMERICAN MADE PLASTERS ARE THE BEST IN THE WORLD.

The belladonna plaster controversy has recently been prominently brought forward in England. (Starting by an attack on Johnson & Johnson's Belladonna Plasters.)

The British Pharmacopeia, and legal enactment in England, requires that belladonna plasters shall contain 0.5 of the alkaloids of belladonna root. This does not admit of the use of hyoscyamus scopolia, dandelion, or "any old thing" except belladonna, and the manufacturers and dealers are becoming excited over the matter.

The leading English authority upon belladonna plasters is J. Rutherford Hill. Some time since he made a report upon the belladonna plasters in which he stated:

"Two samples of rubber combination (so-called) belladonna plasters, made by English manufacturers, contained no atropine."

Out of seven samples of belladonna plasters, bought haphazard by this well-known analyst over different chemists' counters, the only two rubber combination plasters containing atropine were those of American manufacturers. From a recent letter from Dr. Hill to the London representative of Red Cross Notes, the following is extracted:

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

February 4, 1899.

"I have read with interest the Red Cross Notes you sent me. I have had considerable experience with public analysts and their vagaries, and am also habituated to the frequently ignorant and unjust observations of judges who wish to appear wise. My experience as a witness in pharmacy cases, and as an expert in civil action, and as a crown witness in criminal cases during the last 13 years, has given me ample insight into these matters.

"In the case of the plasters I received, there were several legal considerations making it important that I should as far as possible satisfy myself that the plasters contained belladonna extract. I found this not always easy, and I had good reasons to believe that some of the plasters, indicating high percentage of alkaloid were not made with belladonna extract, but had the alkaloids as such added to the basis. I was also convinced that the green color was not solely due to belladonna chlorophyll; I discovered that in the case of some of the English made plasters which indicated very little or even no alkaloid, this was due to the fact that although a proper quantity of extract of the highest quality had been put into the plaster, it had been subjected to so much heating in the process of incorporation and spreading that the alkaloid, which is very sensitive to heat, had been almost and sometimes altogether destroyed. This is where the American cold process of incorporation has a decided advantage over the British method of heating. I also took care to satisfy myself that the alkaloid was atropine. This is not easily done. One of the reactions I mostly relied upon was that known as vitalis, and in every case the separated alkaloid was subjected to this test.

"This belladonna war seems to be a liberal education to a good many people, and that there are dollars in the business is, I fancy, no disadvantage, and of the answer to Pilate's quiz. I would say: "Veritas vincit."

"(Signed.)

"J. RUTHERFORD HILL, Ph.D."

A very recent and careful examination has been made of the belladonna plasters sold in the English market, by S. Rideal, D. S. C., public analyst of London, which shows that Johnson's Belladonna Plasters contain the true alkaloids of belladonna root, in the full proportions required by the Pharmacopeia.

Johnson's Diastase will convert 100 times its weight of starch in 15 minutes.

A sample of Johnson's Diastase will be sent any physician on request.

A BACTERIOLOGICAL TRAGEDY.

A gay Bacillus, to gain him glory,
Once gave a ball in a laboratory.
The fete took place on a cover glass,
Where vulgar germs could not harass.
None but the cultured were invited,
(For microbe clicks are well united),
And tightly-closed the ball-room doors,
To all the germs containing spores.
The Staphylococci first arrived—
To stand in groups they all contrived—
The Streptococci took great pains
To seat themselves in graceful chains;
While somewhat late, and two by two,
The Diplococci came in view.
The Pneumococci, stern and haughty,
Declared the Gonococci naughty
And would not care to stay at all
If they were present at the ball.
The ball began, the mirth ran high,
With not one thought of danger nigh.
Each germ enjoyed himself that night,
With never a fear of Phagocyte.
'Twas getting late (and some were "loaded"),
When a jar of formaline exploded,
And drenched the happy dancing mass
Who swarmed the fatal cover glass.

* * * * * * *

Not one survived, but perished all
At this Bacteriologic ball.

—J. Lee Hagadorn, M. D., in Southern California Practitioner.

The facts related in this story
Occurred in Johnson's laboratory—
Our modesty forbade us speak,
But our big sterilizer sprung a leak.
—Editor Red Cross Notes.

Send for a copy of "A Study in Dyspepsia," containing reports of over one thousand cases of indigestion.

"RULES AND SUGGESTIONS."

In Johnson & Johnson's laboratories there is in use a little book called "Rules and Suggestions."

It contains the general rules and suggestions governing the operatives who have to do with the preparing of surgical dressings. It contains considerable useful information about personal cleanliness, sterilization, hand washing, handling surgical material, etc.

Many training schools, superintendents, hospitals, teachers and others have asked for copies. For this purpose, a small edition has been printed and a request will bring a copy free of charge as long as the supply lasts.

COLORED ANTISEPTIC SOLUTIONS—A PRECAUTION AGAINST ACCIDENT.

Dr. Maurange, in the Pharm. Centralhalle, recommends, as a precaution against accident, the addition of coloring matter to all antiseptic solutions not already self-colored. He proposes the following: For corrosive sublimate solution: methyl violet (1:20); malachite green (1:100); Nicholson blue (1:100); or indigo carmine (1.100). For phenol solution: Fuchsin (1:100); eosin (1:100), or safranine (1:10). Silver nitrate solutions with fluorescine. Indifferent solutions, like boric acid, naphthol, etc., can be used without coloring. He favors the use of the same color for all antiseptics, or at least for those rarely employed.

CAUTION
This package contains Sterilized Surgical Dressings. Dealers should use great care to keep it in a clean place, FREE FROM DUST.
METHOD OF PREPARATION.
This product is prepared and handled by Surgically clean methods. After packing, the container and contents are subjected to germ-destroying vapors in vacuo under pressure, and it leaves our Laboratories Sterile and Aseptic.
Johnson & Johnson.
NEW BRUNSWICK, N.J

This Label Means
To the Dealer

CAUTION

To the Doctor

A WARRANT OF CLEANLINESS

To the Wounded Patient

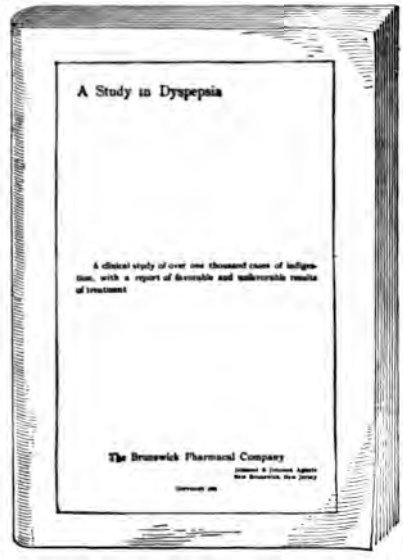
THE CERTAINTY OF LIFE

A STUDY IN DYSPEPSIA.

In No. 12 of Red Cross Notes, there appeared in the advertisements one which contained the following offer: "To any physician in good standing who will select a typical case of disordered digestion, acute or chronic, and prescribe Johnson's Digestive Tablets, we will send one of the largest sized packages containing 150 tablets, free of all cost, provided he will write out a brief diagnosis of the case and send us a report of the treatment with the results, whether good or bad." This offer was to remain open for thirty days, and it was understood that the information thus gathered was to be compiled and published for the benefit of the medical profession. The result of advertisement was very marked—something like two thousand answers were received—and of the samples sent, under the conditions mentioned, the results in about fifteen hundred cases were reported back. These results were from all ranks of the profession. The majority of them from the higher class of general practitioners whose observations were considered of great value. A summary of the reports has just been published in a fifty-six page book entitled "A Study of Dyspepsia;" the title is suggestive of the contents. There are here recorded the history, symptoms and diagnosis of over one thousand cases of disordered digestion, and, as the compilers well state, "the reports bear out the statement that disordered digestion may include in its symptoms some of those in nearly every disease which could be named."

The publication is unique in that contrary to the usual method of publishing clinical reports, in this "Study of Dyspepsia" the failures as well as the favorable results are shown. This adds greatly to the value of the whole.

Some of the reports are reproduced by a photographic process, many of



them are printed in detail, and over one thousand are tabulated. Briefly summarized the reports seem to show that in disordered digestion, taken as they occur in every-day practice, (and it will be observed that the cases reported have not in any way been selected, but have been taken as they run, and the results are, therefore, what might be expected in the common experience of every practitioner), it seems conclusive that the administration of Johnson's Digestive Tablets will, in from 75 to 80 per cent. of all such cases, produce beneficial results.

In the table given in the "Study of Dyspepsia" there are reported one thousand and ninety-two cases from all classes of practitioners and representing every type of patient and variety of symptoms, and as a result:

Cases treated with Johnson's Digestive Tablets.....	1091	or 100	per cent.
Progress unsatisfactory and failures	152 "	13	"
Favorable progress	479 "	43	"
Cured	460 "	42	"

A copy of "A Study of Dyspepsia" will be sent to any physician upon request.

THE USE, ABUSE AND ODOR.

Dr. W. G. Porter recently read a paper upon Iodoform in which he called attention to the possibility of toxic effects from its too free use. He earnestly protested against its routine use. He said that the general practitioner seemed to think that the only treatment for every furuncle, carbuncle, swelling, ulcer, incision, or wound, was to cover it with iodoform until their patients went around like a walking pestilence, the objects of loathing and disgust to their friends and themselves, and of just opprobrium to their physicians. In hospitals there might be some excuse for its free and practically unlimited use. But in private houses, and particularly in private patients who were going about attending to the affairs of life, there could certainly be no excuse for its use, unless in the rare and altogether exceptional cases in which nothing could possibly take its place. He asked what right any physician had by his treatment to direct the attention of every one to his patient. And yet to-day, how few patients who are afflicted with chancroids, herpes, chancre, or almost any other mucous or cutaneous lesion, are spared the infliction of iodoform!

The author gave two examples by way of illustration that had recently come to his attention. The first was a man with a syphilitic ulceration on his face, who had been subjected to the iodoform treatment for a period of four months, absolutely without relief, the ulcer constantly spreading under the caked and incrusted mass of iodoform. He was the proprietor of a prosperous restaurant in a business part of the city, but the combined odors of the iodoform and the badly treated ulcer drove his customers away, and in less than a year he was bankrupt. The removal of the iodoform and the accumulated filth, with proper local and constitutional treatment, cured him in three weeks—but his customers had gone never to return. The second case was a man who had been operated on for appendicitis. A fistula resulted—not fecal, but discharging freely a non-odorous albuminous fluid, the only treatment prescribed for which was packing lightly with iodoform gauze. He had his living to make, was able to go about and attend to his business after a long and expensive illness, and yet he was constantly handicapped by the dreadful odor of iodoform, from which he could never escape. The removal of the iodoform gauze and the more thorough drainage by a lead wire healed the fistula in a few weeks.

Dr. De Forest Willard said that he used iodoform very little. He would much rather smell fecal pus from the ischio-rectal fossa than iodoform.

Dr. H. R. Wharton said he did not remember ever having seen a case of iodoform poisoning. As regards poisoning, the conditions where it would be most favorable for its development would be in the modern method of using iodoform emulsion injections. He knew cases where it had been used for a number of weeks for tuberculous joints, but he had seen no symptoms of poisoning. He did not use it as much as he formerly did, but he believed it to be a very good remedy in certain cases, as in bone cavities and especially in cases of abscess about the rectum, where no packing could take its place. Used in the same way in operations about the mouth, iodoform packing remains sweet longer than any other packing. Experience shows that its use is less safe at the extremes of life.

Dr. George Erety Shoemaker said that he had been unable to find anything which would take the place of iodoform in securing cleanliness in a moist cavity. He had had gauze impregnated with aristol, acetanilid, and other materials, but had found that

iodoform gauze would remain sweet twice as many days in a moist cavity as would any other preparation. He thought, therefore, that nothing could take its place when, for example, one is obliged to use a gauze drain after abdominal section for serious types of pelvic abscess or in some cases of appendicitis, or in packing the uterine cavity.

Dr. W. Joseph Hearn said that the rational use of iodoform was as much indicated to-day as it ever was. Some people use it for syphilis, but it is perfectly useless. It is useful in chancroids, and nothing can take its place. When he had an operation in which there was pus and he had to drain, he used iodoform; where there was no pus he did not need anything. He rarely used the powder in any surgical work, but the iodoform gauze whenever indicated.

Dr. G. G. Davis said there were two classes of cases in which powders are used antiseptically, one in which the drying element was desired and the other in which antisepsis was to be obtained. In the latter case he did not think there was anything to be compared to iodoform. He had tried various substitutes, but they had not compared in efficacy to iodoform. Iodoform is the most reliable agent we have to stop suppuration when actual contact can be secured. It is the most permanent of all the available drugs, and its action does not cease within a short time of its application; neither is it readily dissolved. The gauze impregnated with it retains its action for a long time, and it is for that reason preferable in many cases to a plain packing. Plain gauze becomes impregnated within a day and contains no material for the prevention of the putrefactive process. Iodoform gauze seems to stop the secretion and prevent further putrefaction. He had tried one after another of the various remedies, and the only one he really felt that he could rely upon was iodoform.

Dr. Thomas S. K. Morton stated that his present employment of iodoform was limited to its use as a gauze for packing and drainage, especially where dryness and antisepsis were required for prolonged periods; as an injection in emulsion with glycerin for tubercular joints or abscesses; and, occasionally, in the shape of a five-grain suppository in tubercular affections of the rectum. He had frequently observed more or less serious constitutional effects from a copious use of the powder in former times, and was ever mindful of the unpleasant possibilities even of iodoform gauze packing. For the latter he has never been able to find a satisfactory substitute, but was inclined to think that iodoform gauze as commonly used was entirely too strong.

Dr. J. Ewing Mears said that possibly he had given iodoform as thorough a test as any one in its use in the cavity of the mouth. He has used it for many years in wounds of the mouth and in suppurating cavities in a five per cent. strength. The first dressing which he makes is three days after the operation, and then again in two days, but in cases of copious discharge every day. He had had complaints in private practice, and remembered one case who went away, but finally came back, and he tried it again. It was a case of syphilitic ulcer, and he did not care about letting all his friends know of his condition. He had occasionally used aristol, but by preference he employed iodoform. He had seen nothing in his practice which would compel him to give it up.

Iodoform Johnson is to be used in the same way as the ordinary smelling iodoform; it will give identical results, except the odor. A sample will be sent on request.

NEW THINGS IN ASEPSIS.

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Lintine

No loose fibres, no waste.

Tears or cuts readily.

Quickly made into any form of dressing, or shaped into bandages, pads, tampons, cushions.

Makes cheap and efficient sanitary napkins, handkerchiefs for consumptives, diaper cloths for children.

Has a thousand more uses than cotton or lint.

Has 40 per cent. more surface than cotton or lint.

JOHNSON & JOHNSON,
New Brunswick, N. J.

Sample Sent Free To any Physician On Request.

WORDS OF APPRECIATION.

FIVE YEARS OF SATISFACTION.

S. H. Ragan, M. D.
Kansas City, Mo., Dec. 20, 1898.
Johnson & Johnson:

Kindly send me samples of ligatures, also Red Cross button. I have used your products for the past five years with entire satisfaction to myself and patients, and oblige S. H. RAGAN, M. D., M. A.,
Professor Anatomy and Demonstrator of Columbia Med. College, Demonstrator of Anatomy, K. C. Dental College.

ALWAYS SATISFACTORY.

St. Louis, Mo., Feb. 20th, 1899.
Johnson & Johnson:

Your goods have always given me perfect satisfaction and I shall continue to prescribe and use the same. Respectfully yours, J. A. KING, M. D.,
20 S. 15th st.

VALUABLE DATA.

North Branch, N. Y.
Messrs. Johnson & Johnson:

Gentlemen—It is a pleasure to acknowledge the receipt of the printed literature you so kindly mailed to me at my request, and to say that I found much valuable data contained therein. It will be a source of great interest to me to secure your further publications on both pharmaceutical topics and articles of your manufacture.

Kindly then place my name on your mailing list.

I remain, with regards of high esteem for the interest you manifest to humanity and the general medical profession.

Very respectfully,
JOHN A. COSTELLO.

Washington, D. C., Feb. 27, 1899.
Johnson & Johnson:

Gentlemen—I received the "aseptic towel" sent, and find that in my particular line of work (genito urinary surgery) it's the best thing I have used. Thanking you very much for the same,

I am, with the utmost respect,
G. W. WARREN.

WILL STAND THE TEST.

J. B. Thompson,
Graduate in Pharmacy.
Gap, Pa., 12-29, 1898.
Johnson & Johnson:

Your Red Cross Notes just received, am much pleased with them, would be pleased to have you send them to me regularly. I do not handle anything but J. & J. Have tried them all but find that none others equal, let alone surpass. I have read a good bit of stuff about plasters, but talk is cheap. A good thorough test is what counts, and I am positive that if anybody puts your plasters to a fair test, that they will prove themselves to be superior to all. If all druggists would fill their prescriptions with J. & J. goods, the trade would be much better pleased. Wishing you long life and prosperity, I am, yours respectfully,
J. B. THOMPSON.

THE BEST TEST.

Gentlemen—

I notice your recent "belladonna" commotion and I must say it is amusing, because time and time again it has been shown that a chemical test is not a physiological test. Your name on any plaster is sufficient endorsement for its therapeutic value. I have handled numerous lines and makes and I can safely say that as yet you have no superiors; and perhaps the way the farmer expressed himself would suit the belladonna occasion, viz: "I don't give a goll darn wot's in it, as long as it will do the work."

Yours, etc., J. WERNER.

DEFY CRITICISM.

Millport, Ala., Dec. 23, 1898.
Johnson & Johnson:

Gentlemen—I have just received my first copy of Red Cross. Many, very many, thanks. It is a grand little leaflet and if it proves as good as your plasters, it will defy criticism. I do not want any better plaster than yours. I handle them, recommend and sell them, and they give universal satisfaction. Yes, place my name on your mailing list. I only wish I could get them daily.

F. P. EZELL.

SUPERIOR TO ANY OF ITS KIND.

Washington, D. C., Dec. 24, 1898.

Gentlemen—Some time ago you had the kindness to send me a "can" of belladonna plaster. In justice to you, I must say that it is superior to anything I ever used of the kind. Since using yours in my practice, I feel as though I could use no other.

Yours truly,
DR. JOHN N. BORLL.

HAS BEEN DECEIVED.

Office of
Dr. Leo V. Harbaugh.
Old Town, Md., Jan. 21, 1898.
Messrs. Johnson & Johnson:

Gentlemen—Please send me samples of your canthos, also of your belladonna plasters. I have just received a box of spurious canthos and I wish to see your original, as also of belladonna, as I wish to deal direct and avoid inferior articles. Awaiting same, I am respectfully,

LEO. V. HARBAUGH, M. D., D. D. S.
41 Main st., Old Town, Md.

TIME WELL SPENT.

Cincinnati, Dec. 19, 1898.
Johnson & Johnson:

Gentlemen—Would be pleased to have you send me "Red Cross Notes," etc. Time spent reading them is time gained.

Hoping you will comply with my wishes, I remain, yours truly,
WM. A. TWEHUVE, M. D.

PROOF POSITIVE.

J. C. Cooke,
Chemist and Druggist.
Kincardine, Ont., Dec. 20, 1898.
Messrs. Johnson & Johnson:
New Brunswick, N. J.,

Dear Sirs—I have to thank you for a copy of Red Cross Notes received to-day, and also for literature of an interesting nature, that I have had at various times in the past.

I use on an average five yards Emp. Belladonna 5x7 Plasters every two months, and for some years past have preferred J. & J. If you will send me the Notes and any other literature you issue, I would appreciate it very much. Yours truly,
J. C. COOKE.

BICARBONATE OF SODA IN THE TREATMENT OF SUPPURATION.

Brucker (Thise de Bordeaux) investigated the influence of alkaline dressings in the treatment of local inflammatory affections, and according to his observations such a dressing, whether moist or dry, very rapidly reduces the inflammation, suppurative or otherwise, and causes rapid healing of wounds. This seems independent of any antiseptic property in the proper sense of the word. His method is to apply the dressing of absorbent wool on ordinary principles, using merely a two-per-cent. solution of bi-carbonate of soda, or in some cases vaselin and bi-carbonate (1 in 25), or the soda may be applied directly in the form of a powder. He finds that strong solutions do not act more quickly than a two-per-cent., showing that the chief agent is the alkali and not any antiseptic principle. The same method may be applied for purulent otitis.—Gaillard's Med. Jour.

THE DANGER OF TALKING DURING AN OPERATION.

Dr. Hubener states in the Zisch. f. Hyg. that he has made some experiments to ascertain the effect of conversation around the operating table, in producing wound contamination. On an operating table he placed four Petri dishes. Then, after washing his mouth with a culture of bacillus prodigiosus, he stationed himself about twenty inches from the nearest plate and for ten minutes spoke, sometimes in an ordinary voice, sometimes in a low and sometimes in a high one. In every case, and especially when he had spoken in a high voice, cultures of the bacillus developed in the Petri plates, being particularly abundant in those plates nearest to him. Similar experiments conducted by speaking through a mask similar to an Esmarch's chloroform inhaler containing a layer of absorbent cotton, left the plates sterile. —N. Y. M. J.

HOW TO APPLY DRESSINGS TO THE KNEE AND SHOULDER.

The Lemaine Medicale states that Unna applies a layer of zinc oxide glue to the extensor muscles, above and below the articulation, and then paints a strip five centimeters wide around the limb, leaving the front of the joint untouched. The desired salve or plaster is then applied to the joint, covered with an impermeable cloth and then a layer of the zinc glue. A long strip of gauze is then wound around the whole in a figure 8, crossing on the point of the elbow or knee, while the inner bend is left exposed. The outer layer of gauze is then painted with glue and a layer of cotton applied. This dressing remains in place, does not interfere with the movements of the joint, and can be left for several days.

STEAM AS A DISINFECTANT FOR WOUNDS.

Dr. Beyer has, according to the Deutsche Med. Wochenschr., been very successful in the treatment of granulating wounds, abscesses, etc., by the use of a jet of steam at a temp. of 127 degrees F., applied at a distance of 20 inches. The results were very favorable, and ulcerations which were resistant to ordinary treatment rapidly healed under the influence of the steam. He was led to try the experiment from observing the good results of the use of steam as a disinfectant for surgical dressings.

Messrs. Johnson & Johnson:

Gentlemen—I am always pleased to receive your Red Cross Notes. Its articles are timely, brief, interesting and instructive. I have employed Johnson & Johnson's goods for the past ten years, with entire satisfaction. I admire the prudent and courteous manner in which you reply to some of your vulgar competitors. Even if their goods were as reliable as yours, their methods and insults to pharmacists and physicians would be sufficient to preclude their use by self-respecting members of both professions.

Respectfully yours,

A. H. BICKERS, A. M., Ph. M.

Philadelphia.

NEW METHODS OF TREATING INFECTED WOUNDS.

The Berlin correspondent of the Med. Press. and Circ. gives an account of a series of comparative experiments made by Dr. Galin in the treatment of infected wounds by new methods. The methods used were that of Crede with his silver preparations (except his silver gauze), and the method of Majewski, with a mercurial preparation of 25 per cent. yellow mercurial ointment. He found that while with Crede's dressings the disease was kept from spreading, the results on the whole were not satisfactory. With Majewski's method in the treatment of suppuration the author did not observe any but perfectly negative results. With this treatment wounds began to bleed after three or four days' of the treatment, and the condition became worse in other ways also.

The author concludes by recommending Kocher's treatment at the best known to him. It consists in washing with sublimate solution (1 to 1000), and subsequent neutralization with physiological saline solutions, and then tamponade with iodoform gauze.

SHOULD NON-ABSORBABLE LIGATURES BE DISCARDED.

Dr. Seth C. Gordon, in the Am. J. of Surg. and Gyn., asks the above question, and goes on to say: Without question the profession at large would prefer absorbable ligatures if those who have not used them could be satisfied on two points: 1—That the sutures, and especially ligatures, would not be absorbed until complete union has taken place, or until there is positively no further danger of hemorrhage, and, 2—That the suture material is sterile, and will remain so until absorbed.

Ordinary catgut of medium size has sufficient tensile strength to hold cut surfaces together at the end of six days, and as it is a rule of many surgeons to remove non-absorbable sutures at the end of a week, it is evident that catgut holds long enough to answer the first requirement. Chromicized catgut lasts longer still. As to the second point, it has always been possible for the careful surgeon to prepare his own catgut, so that it would be safe; now, with the new formaldehyde process, perfectly reliable catgut can be obtained at every instrument store.

The Perfect Number 7

happens to be the number of stages through which Red Cross Ligatures pass before reaching the surgeon's hands.

1.—Exterior cleansing. 2.—Removal of moisture. 3.—Sealing in prepared envelopes. 4.—Successive sterilization with various solvents. 5.—Sterilization at 320 degrees in cumol. 6.—Removal of cumol. 7.—Final sealing in germ-proof envelopes.

Can You Add Another Number?

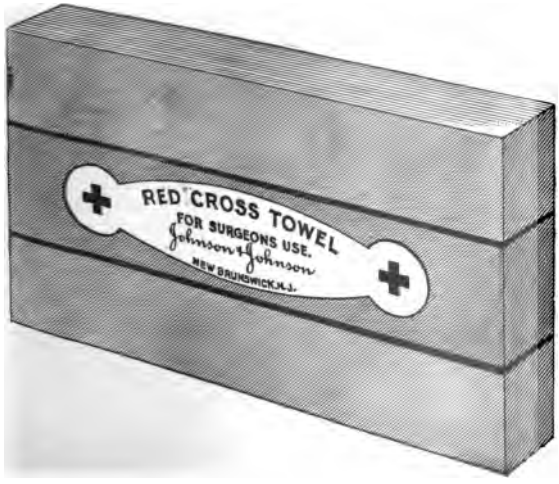
Sample sent free.

RED CROSS ASEPTIC TOWELS.

So simple an article as a towel, especially an aseptic towel, is a most valuable and almost indispensable article of the surgeon's armament. They are utilized not only for wiping hands and instruments, but for covering operating tables, wrapping dressings within their folds, and in the absence of other dressings, are useful as bandages, pads, etc.

Messrs. Johnson & Johnson are making a surgical towel from closely woven bleached absorbent cloth. This towel is about ¾ of a yard in length, and about ½ a yard in width. Each towel is wrapped, sterilized and sealed. These can be washed and resterilized for use or, as they are cheap enough to throw away after use, the latter course has been found to be the safer one.

Careful surgeons will be glad to take advantage of this important article for use in handling and dressing wounds.



AN EMERGENCY CASE.

Every doctor should have a case that he can "grab and run" with, when called to an accident. How much time is lost hunting for the various articles that may be needed; and when one has reached the patient it is more than likely that some of the most necessary things have been omitted, and more time is lost sending back for them. I have just had such a case stocked by Johnson & Johnson, whose unexcelled surgical dressings have been used by the writer ever since the firm came into existence.

Opinions will of course differ as to what should go in such a case, but here is the list in my own: Pocket instrument case, plain gauze, sublimate gauze, iodoform gauze, lintine, aseptic towels, aseptic bandages, aseptic sponges, absorbent cotton, sublimate leaves, Beach's powder, silk ligature, three grades; catgut ligature, three grades; adhesive plaster, spool, chloroform, ether, brandy, hypodermic syringe, morphine, atropine, veratrine, strychnine, apomorphine, and glonoin hypodermic tablets, ergotole (S. & D.), aromatic spirits of ammonia, vial of distilled water.

Some of these could of course be dispensed with, but every one comes in handy at times; and it would not be easy to name any ordinary accident or emergency for which this list does not offer an appropriate remedy.

Can anyone suggest an improvement?

The ideas of one will not do for all, and we profit by the concensus of the opinion of the many.

—Alkaloidal Clinic.

Who Will Haul Down The U. S. P. Standard?

[Formula U. S. P. Belladonna Plaster]

EMPLASTRUM BELLADONNÆ.

BELLADONNA PLASTER.

Alcoholic Extract of Belladonna, *two hundred grammes*	200 Gm.
Resin Plaster, *four hundred grammes*	400 Gm.
Soap Plaster, *four hundred grammes*	400 Gm.
To make *one thousand grammes*	1000 Gm.

Melt the Plasters on a water-bath; then add the Extract of Belladonna, and continue the heat, stirring constantly, until a homogeneous mass results.

Dr. Woodbury says many plaster makers are attempting to tear down the U. S. P. by making Belladonna Plasters of Scopolia, Jimson Weed, Dandelion, in fact anything and everything except Belladonna.

Johnson's Belladonna Plaster conforms strictly to the U. S. Pharmacopœia, is made of true Atropa Belladonna, full U. S. P. strength. Contains all soluble constituents of Belladonna in absorbable form. Is a true U. S. P. Belladonna Plaster.

The Standard of the U.S.P. is UPHELD By Johnson's Belladonna Plaster.

RED CROSS NOTES

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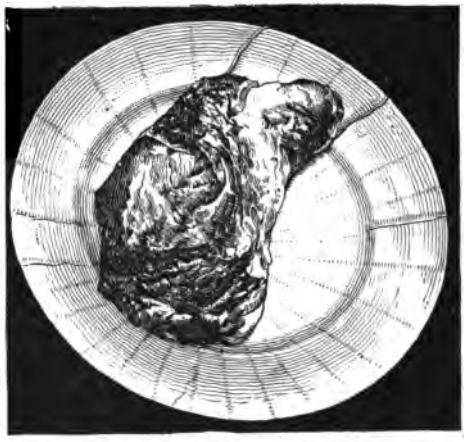
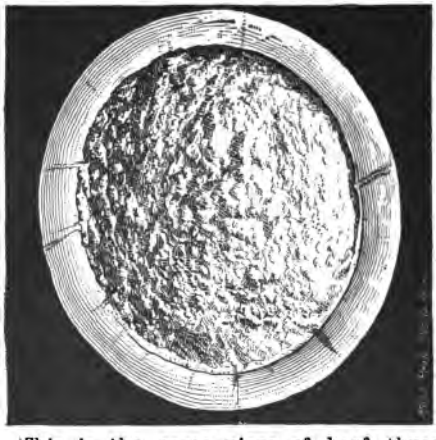
BOSTON MEDICAL
JUL 17 1899

No. 8. NEW BRUNSWICK, N. J. 1899



This is a piece of tough, raw beef, moistened with a solution of Johnson's Digestive Tablets and placed in a warm place at a temperature of 110 degrees. *Watch it.*



This is the same piece of beef three hours later. Note that the softening process begins immediately, and at the end of three hours the product is practically jelly.

This is the bottle that contains these wonderful tablets.

AND THIS IS THE TABLET - - - -

FORMULA:

Papoid gr. 1
Soda Bicarb. gr. iii.
Oil Mentha pip.
Saach Lac. q. s.

RED CROSS NOTES

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SERIES II, No. 8. NEW BRUNSWICK, N. J. 1899.

A STUDY IN COTTON.

A vast deal has been written about cotton as an article of commerce, but of absorbent cotton or surgical cotton there is less real knowledge extant than of any other common article in the surgeon's armament.

In this issue of the Red Cross Notes the greater portion of the space is given over to a study of cotton fibre as known to surgery—absorbent cotton and its varying forms.

The data here given is largely the result of investigations in the Johnson & Johnson laboratories. From these laboratories has emanated the greater part of the information now extant upon the subject of surgical cotton.

The study of cotton in these laboratories means a research, beginning in the field and following the fibre to its ultimate application by the surgeon. It means the application of processes that tend in every way to advance the value of cotton for wound dressing.

The reader of these studies will probably be convinced that cotton for surgical uses should be prepared by those who have a knowledge of the requirements of modern surgery, together with the skill and the resources necessary to carry them out.

That much of the cotton now used in surgery is prepared by makers who either do not know the wants of the surgeon or else ignore them.

That the labors of Johnson & Johnson in the art of preparing absorbent cotton, absorbent gauze and other cotton fabrics have been of great value in the advancement of the art of surgery.

That these makers strive and, so far as the limitations of the art allow, succeed in preparing perfect cotton preparations for surgical uses.

OFFICIAL COTTON.

The following synonyms for cotton may be found in the Pharmacopeias named:

United States Pharmacopœia, 1890.
Gossypium Purificatum.
Purified Cotton, Absorbent Cotton.

National Formulary.
Gossypuim Stypticum.
Carbasus Carbolata.
Carbasus Iodoformati.

British Pharmacopœia, 1898.
Gossypium.
Cotton, Cotton Wool.

Arzneibuch, Ed. III. 1890.
Gossypium depuratum.
Gereinigte Baumwolle.

Nederlandsche Pharmacopee, 3rd ed. 1889. (Dutch ed.)
Gossypium depuratum, Gezuiverde Boomwol, Watten.
Gossypium cum Chloreto ferrico Bloedstelpende Watten, Gossypium stypticum.
Gossypium cum Chloreto hydrargyrico, Sublimaatevatten.
Gossypium cum Iodio, Ioodwatten.
Gossypium cum Iodoformo, Iodoformwatten.
Gossypium cum Phenolo, Carbolwatten.

Pharmacopœa Portugueza, 1876.
Algodoeiro.
Gossypium vel Hylon.
Sementes: Semina Gossypio.

Filamentos das Sementes (Cardolos) (Vulgarmente)
Algodao em rama, Lanugo Gossypii.

Codex Medicamentarius, Paris, 1818.
Gossypium Herbaceum, L.
Xylon, sive Gossypium Herbaceum.
(Le Coton.)

Pharm. Mexicana, 1896
Algodon—Cotton.
" Absorbente.
" Con acido bórico.
" " " fénico.
" " " sublimado.
" hidrofilo.
" pólvora.
" salicilado.
" yo ado.
" yodoformado—Iodoform.
Algodones antisepticos.

Pharm. Japonica, Tokyo, 1886.
Gossypium depuratum.
Gossypium stypticum.

Russian Pharm., 1891. p. 282.
Gossypium depuratum.
Хлопчатая Бумага
Gossypium haemostaticus.
Кровьостанавливающая Вата.

Pharm. Batavia, 1824. ii, p. 136.
Gossypium herbaceum.
German:—Baumwollenslande.
Belgium:—Boomwoollboom.
Danish:—Bomila trace.
Swedish:—Bomullträd.
Italian:—Cotone.

Pharm. Universalis. Weimar, 1838.
Gossypium (in the text)
Baumwolle, Baumwollenstrauch, Baumwollenweide. } in the index.
(Salix pentandra.)

Pharm. Parisiensis, 1748.
Bombax.
xylon sive Gossipium herbaceum.
(Le cotton)

Pharm. Italiana, 1887. (Suppl. p. 68.)
Cotone clorato glicerinato.
Cotone fenicato.
Cotone al iodoformio.
Cotone di legno.

Pharm. Francaise, 1884. 49, 364.
Coton.
Coton iodé xylum iodatum.

Pharm. Oesterreichischem, 1892.
Gossypium.
Lana Gossypic, Baumwolle.
Coton, Cotton wool.

Farmacopea Oficial Espanola, 1884.
Algodon—Gossypium—Xylon.
Algodon—pólvora—Gossypium igniarium.
(Piroxilina)

ANALYSIS OF COTTON FIBRE (RAW.)

	Per Cent. Ash of fibre.	Fibre dry.
Moisture at 100° C.....	....	6.77
Crude ash.....	....	1.93
Nitrogen.....	....	.215
Phosphoric acid, P_2O_5...	2.94	.057
Potash, K_2O.....	47.10	.909
Soda, Na_2O.....	1.51	.029
Lime, CaO.....	8.30	.160
Magnesia, MgO.....	8.96	.173
Sulphuric acid, SO^3.....	5.01	.097
Insoluble matter.....	1.555	.030

In the Johnson & Johnson laboratories there is a continuous "study in cotton."

COTTON IN HISTORY.

The exact date at which cotton first came into use is unknown, but at the dawn of history we find it mentioned by early writers. The first country to make use of the fibre of the cotton plant for textile purposes was India.

In a digest of ancient laws, ascribed to Manu, in the year 1800 B. C., it is spoken of in such a way as to indicate that it was well known and highly esteemed by the Hindoos.

Herodotus, in 450 B. C., writes of "the trees in India that bear as their fruit fleeces more delicate and beautiful than those of sheep, and of the Indians using it as clothing." Theophrastus describes its culture minutely. One of the most accurate descriptions of its use given by any of these early writers is that of Nearchus, a general of Alexander's, who invaded the country around the shores of the Arabian and Persian Gulfs, in 327 B. C. The cotton found by Nearchus was utilized by his soldiers in stuffing their saddles. Pliny and Lucian also speak of the use of the cotton plant in India.

Some of this material must have early found its way into China; it is mentioned in the reports of the revenues of that country about 200 B. C. At the ascension of the Emperor Ou-ti of China to his throne in 502 A. D. he wore a robe made of cotton.

In Egypt it had been known for several centuries; its value was not appreciated until about 100 A. D. Pliny states that "in upper Egypt, toward Arabia, there grows a shrub which some call Gossypion, others Xylon, from which the stuffs are made which we call Xylina; it is small and bears a fruit resembling a filbert within which is a downy wool which is spun into thread," and Pollux, 150 A. D., states that "among the Indians, and now also the Egyptians, a sort of wool is obtained from a tree with a fruit most nearly resembling a walnut, but three cleft."

DRAWING OF COTTON PLANT.

From L. Fuchsius' De Historia Stirpium Commentarii Insignes, Lugduni, 1551, page 529.

Cotton was known among the Greeks probably as early as 200 B. C., for we find it mentioned in the works of Statius Cecilius, who died in 169 A. D. From Greece it naturally found its way to Rome during the years from 250 B. C. to 30 B. C.

Mohammedans have done more to introduce cotton into the countries of Europe than any other people.

How long cotton has been known to America will never be found out, for, although botanists say that the plant is not indigenous to this country, Columbus found it growing abundantly in the West Indies, in 1492, Cortez found it in Mexico, in 1519, Pizzaro found it in Peru, in 1592, and Magellan found it in use among the natives of Brazil. In all these countries the natives had used it extensively for clothing, blankets, etc., and even with their crude looms contrived to make fabrics which rival those of to-day. It must have been in use among them for many centuries, for well-preserved pieces were found on mummies of very ancient type.

With the advent of the modern age, with its new necessities and its greater facilities, cotton became more and more extensively used. Where it could not be cultivated it was imported, and many nations must consider it as among their chief sources of wealth and power.

The first countries to manufacture cotton cloth to any extent were Turkey and Spain. Italy seems to be the next country which became engaged in its manufacture, Venice being the first city in which this occupation was pursued to any extent.

The first mention of the manufacture of cotton in England is by Roberts, in a work published in 1641, but the industry was probably brought into use a few years before this, although only carried on at first in private households, the methods being very crude. After 1760 cotton was used quite freely by the Manchester weavers, and it soon began to become an important commodity.

With the invention of the cotton gin, the carding machine and the weaving machinery and the application of steam power for their motive force, the struggling industry soon grew till it has become the most important manufacture of the world.

Although the United States was about the latest country to take up the cultivation and manufacture of this product, it has for almost a century been in the lead. According to Bancroft, Jamestown, Va., was the home of the first cultivated cotton in this country (in 1621). The cultivation of cotton among the colonists grew very rapidly until it became the chief source of their clothing and the most important product of the soil in the South. The first cotton gin used in this country was one invented by Mr. Krebs, and employed on his farm in East Mississippi, in 1712. The cultivation, production, manufacture of this commodity, which has been so intimately connected with the history of the Southern States, has been and still is from year to year increasing rapidly. In 1790 the crop was 5,000 bales; in 1890 it amounted to 10,231,696 bales.

Although the manufacture of cloth fabrics is the main object for which the cotton plant is employed, civilization has found need for its use in many different forms, among the most recent of which, and yet one of the most useful, is that of surgery; cotton was first used in this connection in its raw state in its application to burns and wounds in the form of wadding. In 1854, F. K. Bailey used cotton wool for this purpose. In 1871, M. Gucine recommended a thick layer of cotton to act as a filter against dust and germs. In 1876, M. Guyon prepared medicated cotton, which he employed in the place of sponges for dressing and cleansing wounds; although not very absorbent, the cotton that he used would hold a certain quantity of the weak carbolic acid solution; he was accustomed then to roll this up into balls and keep in well-stoppered, wide-mouthed bottles. Cotton wadding was also used as a packing for refrigerators to prevent access of putrefying germs. In 1877 Messrs. Sims and Shaw, of Stockport, were manufacturing cotton wool, which they state "possesses such remarkable absorbent qualities that a small piece dropped on the surface of water will almost instantly sink" and continue to describe this new product in the following terms: "For surgical purposes it is obvious that there are many uses for which wool of this kind will prove especially valuable. Wherever cotton wool is used for purposes of absorbing moisture this preparation will have especial qualifications, assuming that there is no chemical reason resulting from the mode of preparation which would interfere with its employment; it has a rather crisper feeling than ordinary cotton wool, but besides that it does not differ from other samples in physical characteristics." In 1879 an absorbent cotton (so called for the first time) was imported from America under the name of Lawton's absorbent cotton and offered to the English medical profession by Messrs. M. S. Burroughs & Co., of Snow Hill, London. In 1879, M. C. Am Ende, of Hoboken, N. J., announced in "New Remedies" that he had patented a method for manufacturing borated gauze and cotton. In 1883, Mr. Sampson Gamgee made a material for surgical dressing to which the name of absorbent cotton wool tissue was given.

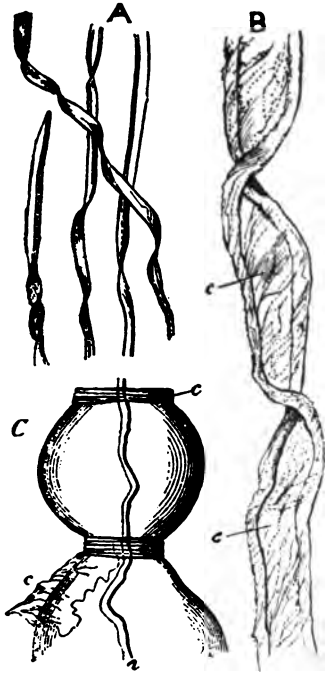
Absorbent cotton as a wound dressing material came into general use with Listerism. When absorbent cotton was first introduced, it was supplied by the dealers in the form of wads or masses of the most irregular and inconvenient shape. It is safe to say that almost as important as the introduction of absorbent cotton was the invention of a method of putting it up in a way that it could be conveniently used by the surgeon—viz., the rolling of the cotton into sheets with tissue paper between each layer. This simple device has been of greatest value in making possible and popular the use of absorbent cotton.

It was devised by Johnson & Johnson, and the first cotton placed on the market rolled in layers with tissue paper between the layers was of their make. This was more than ten years ago. It was not patented and its use was given to the surgical profession. Naturally every manufacturer immediately rolled his cotton with tissue. In fact it could not be sold otherwise. A far greater improvement in the manner of preparing absorbent cotton for surgical use was the production of Lintine. This is absorbent cotton felted into thin sheets.

In the history of cotton, thus briefly traced, we see that the cotton fibre has for ages held an important place in the world's economy. At the close of the century we find this same fibre purified, made surgically clean, exalted to the dignity of a hand-maid of asepsis and antisepsis, doing an humble but most important part in that era which has "brought blessings that have soothed and removed untold suffering and misery, have saved millions of lives."

COTTON FIBRE MECHANICAL STRUCTURE.

Cotton appears to the naked eye as a solid cylindrical hair, but, when examined under the microscope, the fully ripe fibre appears as a flattened hollow ribbon or a collapsed tube, twisted spirally many times throughout its length, with the outer edges corrugated and indented somewhat similar to a saw; it is of equal diameter for about three-quarters of its length, gradually tapering to a point. This point is almost perfectly cylindrical, and is composed of solid matter.



COTTON FIBRE.

A.—Magnified 50 diameters.
B.—Magnified 500 diameters.
c.—Cuticula.
C.—Piece of cotton fibre after being acted upon by solution of cuprammonium-oxide.
c.—Cuticula. e.—Interior film.

Cotton is distinguishable from every other variety of fibre, either animal or vegetable, and its appearance can readily be detected under the microscope in any mixture, cloth or fabric by the presence of its peculiar cork-screw twist (sometimes several hundred twists to the inch).

A perfect cotton fibre consists of four parts—(1) an outer membrane, which constitutes the outside skin of the fibre; (2) the real cellulose, which constitutes 85 per cent. of the fibre; (3) a central spiral deposit of a harder nature than the rest of the fibre, and (4) a central secretion that corresponds somewhat to the pith of a quill.

Associated with the cellulose sheath in cotton fibre is a sort of varnish or oleaginous substance known under the name of cotton wax; along with this wax is a coloring matter and a fatty acid (margaric); cotton wax fuses at 186.8 degrees Fahrenheit, and solidifies at 179 degrees Fahrenheit.

Analysis of wax from American fibre has been reported to be: Carbon, 80.38 per cent.; hydrogen, 14.51 per cent., and oxygen 5.11 per cent. There is also associated with cotton fibre a certain amount of coloring matter; a peculiar resin insoluble in water, soluble with difficulty in alkalies; a small quantity of fatty matter, more or less resembling cotton-seed oil; inorganic saline matters; pectic acid, and traces of albuminous matters.

The coloring matter of cotton is soluble in alcohol, and may be obtained on evaporating the solution as a dark brown, shiny, transparent residue. There is also present another coloring matter insoluble in cold, but soluble in hot alcohol from which it precipitates upon cooling.

Cotton to be made absorbent must be rendered free from all the substances here enumerated, except the cellulose structure.

The *Druggists' Circular*, March, 1881, gives the following wholesale prices for absorbent cotton: Pound packages, $1.12 per pound; half-pound packages, $1.35 per pound; one-half ounce packets, $2.25 per pound.

GRADES OF COTTON.

The selection and classification of cotton are matters of importance in commerce; of the greatest importance in the selection of cotton for surgical purposes.

Certain necessary qualities in cotton fibre are: 1, length of fibre; 2, smallness or fineness in diameter; 3, evenness and smoothness; 4, elasticity; 5, strength; 6, color; 7, hollowness or tube-like construction; 8, natural twist, and 9, corrugated edges.

In the Johnson & Johnson laboratories the cotton is first selected in the cotton-growing district and a sample from each bale retained and marked with the bale number. But, as the supply cannot be expected to turn out exactly as the the sample supplied by the grower or factor, a rigid examination must be made as each day's supply comes from the storehouse.

This is done by taking samples from various parts of the bale and mixing them for average. The main points for examination are:

First, the grade, as to freedom from leaf, mud, sand, dust, also regarding general cleanliness.

Next, the staple, as to the average length of the fibers in the bale, the strength of the fibre, the amount of half-ripe, unripe and ripe fibres, the extent of broken fibres from the ginning process.

Then the color, as to whether the cotton is stained or tinged with the stains of the plant or is naturally off color, and will never become white.

Finally, as to whether the bales run fairly even in all points. (It is found that some bales of cotton are greatly mixed as to grade, staple, color, with often abnormal variations.)

Cotton that sinks when thrown into water may not be absorbent cotton. Soap, sand and lead will make cotton sinkable, but not absorbent.

BOTANY OF COTTON.

Natural order Malvaceae—genus gossypium. The number of species of the cotton plant have been variously stated as from four to nearly a hundred.

Professor Parlatore, an Italian botanist of high authority, names seven varieties, as under:

1. Gossypium Barbadense, embracing the long-stapled Barbadoes, Sea Island, Egyptian and Peruvian cottons.

2. Gossypium herbaceum, embracing the cottons of India, Siam, China, Italy, etc.

3. Gossypium hirsutum, the original cotton of Louisiana and also of the variety known in commerce as uplands.

4. Gossypium arboreum, found in Ceylon, Arabia, South America, etc.

5. Gossypium Peruvianum, embracing the native varieties of Peruvian and Brazilian cottons.

6. Gossypium Tahitense, found in Tahiti, the Society Islands, etc.

7. Gossypium Sandwichense, including the cottons found in the Sandwich and adjacent islands.

Dr. Forbes Royle classifies the four principal varieties known in commerce as:

Gossypium herbaceum; 15 to 20 feet high (tree cotton); flowers red.

Gossypium hirsutum, shrubby plant.

Gossypium; barbadense 6 to 15 feet; yellow flower.

(Full description of United States species may be found in Bulletin 33, U. S. Dept. Agriculture.)

In the preparation of the studies in cotton presented in this number we are indebted to many who have given valuable aid and suggestions, particularly to the Lloyd Library, Cincinnati, Ohio, for illustrations and data, to H. O. Hall, Surgeon-General's library, Washington, D. C., to H. G. Kitteridge and many others.

It is most important to the surgeon that absorbent cotton shall be free from germs.

DEFECTS IN MARKET COTTON.

The highest grades and varieties of cotton in the market contain more or less natural impurities, and, in addition, through imperfect manipulation, their value is reduced by the production of artificial defects. For instance, we have.

1. Broken leaves originating through carelessness on the part of the pickers at the plantations, who, when plucking the cotton from the bolls, grasp and break off decayed leaves and remove the whole together. These particles of broken leaves are light in weight, they pass through many of the cleaning operations, and are only removed with the greatest difficulty.

2. Seeds. These are supposed to be removed in the ginning process, but, as the machines are often overcharged with material, there remains a considerable number of either whole or crushed seeds which are carried through with the cotton and remain as an impurity in the cotton supply. The process of cotton ginning is not carried out with the carefulness that the importance of the work demands.

3. Sand and mineral matter. This is found in all grades of cotton having been picked up through the dust of the field and many other sources in its migration to the laboratory. The percentage of sand and mineral matter ranges from 2 to over 5 per cent. Sand and water are sometimes added to cotton as an adulterant.

4. Short fibre. In every pod of cotton, when the plant has reached maturity, there remains an undergrowth of short hairs on the base of the seed. In the cheaper grades of cotton this hair is entirely removed in the close ginning process and thus mixed with the longer fibre.

5. Unripe and immature fibre. In every lot of cotton three classes of fibre may be recognized: 1, unripe; 2, half ripe, and 3, ripe. These conditions are dependent upon several factors, the most important of which is the gathering of cotton before it has been exposed for a sufficient time to the ripening action of the sun and air. The other cause is due to the different stages of maturity of the

BRANCH OF COTTON PLANT, SHOWING BLOSSOMS, BOLLS AND SEED WITH ATTACHED FIBRE.

filaments on different parts of the same seed. Unripe cotton, when examined with the aid of a microscope, appears extremely thin and transparent, and usually with little or no twist, and it is of little use for manufacture. When used it contracts and curls up in the warm atmosphere of the factory, causing yarn spun from cotton containing much unripe fibre to depreciate greatly in value. The half-ripe fibre has the same characteristics, but to a

lesser degree, and is more valuable than the former, but it is only the ripe cotton fibre that possesses all the requisites for perfect cotton. Unripe fibres containing little or no cellular opening do not form capillary tubes, and cannot be made to act as absorbents. Cotton containing any great proportion of half-ripe or unripe fibre is unfit for use in making absorbent cotton or to be spun into gauze or lint cloth.

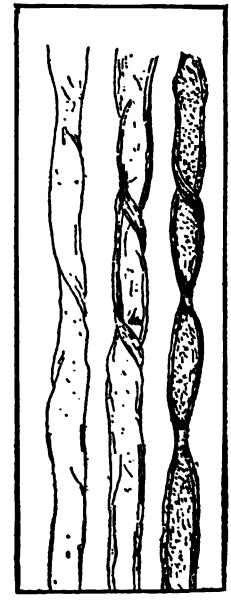
6. Broken or ruptured fibre. This is traceable to the action of the ginning machine, and is due to the thick fleeces of cotton being fed rapidly into contact with the revolving rollers of the machine, the fibres being bent and crossed in every direction. The result is that there is always more or less damage by the tearing apart, the structure of the hairs sometimes being completely broken.

7. Stringy or tangled cotton, arising from the entanglement of the fibre and from being subjected to too long action with the ginning apparatus.

8. Nubs, nibs, nebs. These arise from various causes; one being that when cotton is ready for picking all of the fibres have not arrived at the same stage of maturity, some being in what might be termed the green state. As a result when the circulation of the sustaining fluids of unripe cotton is discontinued by the removal from the seeds, they contract, curl and entwine themselves around the good fibre, when they appear as small white specks. This class of nib is extremely difficult to remove, and when removed it is at the expense of some of the perfectly developed hair.

Nibs also arise in the manipulations of the cleaning process; these cannot be altogether avoided, owing to the variation in length and other characteristics of the fibre. The presence of nibs in absorbent cotton, arising from manipulation in the machines through which it must pass, is not as objectionable as in cotton used for spinning, as if the nib fibres are ripe, they can be made absorbent.

In the better grades of woven cotton it is necessary to remove these nibs in order to produce smooth goods; in their removal quite an amount of long fibres are combined with the nibs; this product is known as waste, and is said to be purchased cheaply by absorbent cotton



UNRIPE, HALF-RIPE AND FULLY RIPE COTTON FIBRE.

manufacturers and mixed with a small amount of good fibre, the whole bleached and again carded up together.

Taking into account the great delicacy of cotton fibre, its physical structure, etc., it is easy to understand the care which must be extended to fit it for application in technical arts; much more so is this the case when it is to be applied for the purpose of wound dressing.

Every glistening pebble does not contain gold. All cotton that is labeled "absorbent" is not fit to lay on a wound.

RED CROSS NOTES.

The little publication known as Red Cross Notes is issued more or less regularly, supplementary to the monographs, booklets and other publications issued from our laboratories.

These issues are sent without cost to such persons as we are able to reach through the regular channels of trade and correspondence. The receipt of any given number will not imply that the recipient will receive future issues.

Those who desire to receive Red Cross Notes regularly must send a specific request to this effect; the names of such persons will be entered upon our mailing list, and they will thereafter receive all issues.

JOHNSON & JOHNSON,
New Brunswick, N. J.

TENSILE STRENGTH OF COTTON FIBRE.

Cotton fibre is weakest at the end farthest from the seed—the tapering point. The tensile strength of an individual fibre is stated as varying between 75 to 300 grains, according to the kind of cotton and the point of the fibre upon which the test is made.

The following table is given by Monie as fair average breaking weights:

Description.	Textile strength in grains.
American Sea Island	100
Egyptian Gallini	125
Egyptian Brown	150
Egyptian White	146
Brazilian Pernambuco	160
American Orleans	140
American Texas	145
American Mobile	110
Indian Hingunghat	150

Cotton, to be used on a wound, should be pure cellulose, free from chemicals and foreign matter, free from germ life—pure cotton, nothing else.

CLASSIFICATION OF COTTON.

American cotton is graded according to fixed standards agreed upon in all the cotton markets of the world. Standard samples representing these grades are kept in the New York Cotton Exchange, duplicates of which are found at the various cotton markets of the United States.

Under this system:

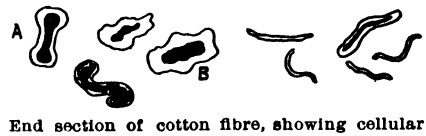
The full grades are fair, middling fair, good middling, middling, low middling, good ordinary and ordinary.

The half grades are designated by the prefix "strict."

The quarter grades are designated by the prefixes of "barely," meaning the mean point between the half grade and the next full grade above, and "fully," meaning the mean point between the half grade and the next full grade below.

In the following list the full grades are given in capitals, the half grades are in italics:

FAIR,
Barely Fair,
Strict Middling Fair,
Fully Middling Fair,
MIDDLING FAIR,
Barely Middling Fair,
Strict Good Middling,
Fully Good Middling,
GOOD MIDDLING,
Barely Good Middling,
Strict Middling,
Fully Middling,
MIDDLING,
Barely Middling,
Strict Low Middling,
Fully Low Middling,
LOW MIDDLING,
Barely Low Middling,
Strict Good Ordinary,
Fully Good Ordinary,
GOOD ORDINARY,
Barely Good Ordinary,
Strict Ordinary,
ORDINARY,
Low Ordinary,
Inferior.



End section of cotton fibre, showing cellular openings. A and B are mature ripe fibres, the others are unripe immature fibre.

ABSORBENT COTTON.

In the medical dictionaries this substance is defined as the hairs of cotton-seed freed from impurities and deprived of fatty matter, so as to become an absorbent for fluids.

An illustrated definition would be the immersion of the fibres of raw cotton, in water, side by side with those of absorbent cotton, when it will be found that the raw cotton will not absorb except by a slight capillary action, that the fibres of raw cotton are more or less repellent of the water; on the other hand, the fibres of absorbent cotton fill with the liquid, swell and sink.

The preparation of absorbent cotton for the finer purposes of the arts, and especially for use in surgery, is illustrated at length in this number. This involves a long series of operations, having in view the depriving of the cotton fibre of its natural impurities and foreign substances, leaving as a resulting product a tube or fibre consisting of pure cellulose. The forty or more operations elsewhere described as applied to the preparation of surgical absorbent cotton and surgical gauze are directed first to the removal of extraneous matters exterior to the fibre itself, such as unripe fibre, broken fibre, nibs, leaves, dirt, sand, seed and other substances, many in number, but which must be removed if a perfect product is desired. The next series of operations are directed toward the removal of varnish-like and oleaginous deposits which cover and impregnate the cellulose structure and fill its natural capillary tube.

While it may be said with truth that cotton can be made absorbent without being bleached, the operation of bleaching is involved in the processes for the purpose of producing a whiter and cleaner product; it also serves a purpose in rendering the fibres more absorbent. As our studies show, these are complex operations, involving all the skill that science, art and mechanics can apply to reach the desired end. It is to be regretted that these operations result to a certain extent in the loss of strength and of the resilient properties natural to the fibre.

But, in the present state of the art, no way is known to avoid this loss and still produce the perfect product now sold under the name of absorbent cotton.

Attention is called elsewhere to the fact that the common test applied to absorbent fibres, requiring that when dropped in water they shall immediately sink, is not a measure of absorbent power. Quick sinking, which many manufacturers claim means quick absorbency, it is shown can be secured either by dexterous manipulation or by the use of chemicals which have an affinity for water.

To prepare cotton for surgical uses requires that it shall not only be clean from foreign matter, rendered absorbent and bleached, but that it also be free from germ life; this is accomplished by processes of sterilization or a practical application of bacteriological methods.

Thus we see that the terms "absorbent cotton" and "absorbent gauze" have a much wider meaning than they at first seem to imply. The preparation of surgical absorbent cotton and surgical gauze from the field to the finished product, even to the time it reaches the patient, requires in every step the same skill and accuracy that should be imposed upon the preparation of every medicinal agent.

PROXIMATE ANALYSIS OF COTTON FIBRE (RAW).

DETERMINED	Per Cent.
Moisture at 100° C.	6.74
Dry matter	93.26
	100.00
ANALYSIS OF DRY MATTER.	
Crude proteins	1.61
Crude fat	.65
Nitrogen, free extract	6.22
Crude fibre	89.75
Crude ash	1.77
	100.00

FROM START TO FINISH.

Principal operations in sequence in the culture of cotton and the preparation of cotton fibre for surgical uses in the form of absorbent cotton and surgical gauze.

CULTURE OPERATIONS.

Breaking up fields, fertilizing and harrowing—December and January.
Bedding up—February.
Fertilizing—March.
Planting—April.
Chopping out—May.
Cultivation, plowing, hoeing, etc.—June.
Laying by—July.
Picking—August, November (to January).

PLANTATION OPERATIONS.

Ginning,
Baling,
Compressing.

SURGICAL GAUZE.

Operations from raw cotton fibre to shipment as sterilized and aseptic gauze:
Sampling and inspection,
Mixing,
Opening,
Beating,
Lapping,
Carding,
Drawing,
Comb lapping,
Combing,
Drawing,
Slubbing,
First roving,
Second roving,
Third roving,
Spinning,
Weaving,
Folding.

OPERATIONS ON THE WOVEN CLOTH.

The gauze cloth is carried through these operations in one continuous piece, 50,000 yards long, passing from solution to solution, building to building, automatically, at the rate of 200 yards per minute.

Wetting out,
Washing in water,
Acid bath,
Washing in water,
Alkaline and soap treatment (saponification),
Washing to remove alkalies,
Chemical baths,
Washing to remove chemicals,
Acidulated bath,
Washing to remove acids,
Alkaline baths,
Washing to remove alkali,
Acid baths,
Washing to remove acids,
Neutralization of chemicals,
Washing in water,
Hydro. extraction,
Opening out,
Drying and tentering,
Rolling,
Cutting into lengths,
Packing into cartons,
Sterilization—Sealing,
Bacteriological tests.

ABSORBENT COTTON.

Operations from arrival of raw cotton fibre at Johnson & Johnson's laboratories and storehouse to shipment as sterilized cotton:

Weighing,
Sampling and inspection,
Opening,
Beating,
Lapping,
Carding,
Weighing,
Packing in boilers (kiers),
Washing in water,
Alkaline and soap bath (saponification),
Washing to remove alkali,
Chemical baths,
Washing to remove chemicals,
Acidulated bath,
Washing to remove acids,
Alkaline baths,
Washing to remove alkali,
Acid baths,
Washing to remove acids,
Neutralization of chemicals,
Washing in water,
Hydro. extraction,
Opening (the fibers are at this point matted together, and must be opened for subsequent operations),
Drying (temperature 220),
Inspection and tests,
Lapping (rolled in sheets preparatory to carding),
Double carding,
Laying (carded fleeces made into layers),
Rolling and weighing (rolled with layers of tissue between each layer),
Cutting (rolls cut in sizes 1 pound, 1-2 pound, 1-4 pound to 1 ounce, etc.),
Inspection and tests,
Weighing,
Packing into cartons,
Sterilization—Sealing,
Bacteriological tests.
Casing,
Marking and shipping.

In Johnson & Johnson's laboratories these processes, nearly forty in number, are continuous, the fibre being carried automatically through step by step through ingeniously devised apparatus.

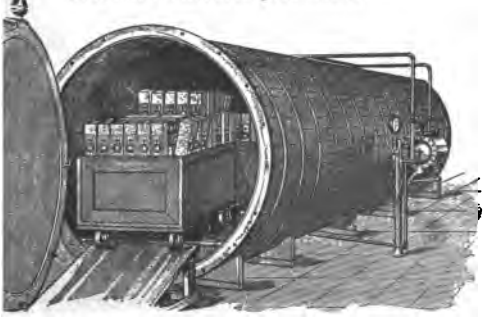
STERILIZED COTTON FIBRE

Aseptic cotton belongs to a new era—the era of surgical cleanliness.

At present the most important requirement as regards cotton dressings to be applied to wounds is that the material shall be free from pathogenic bacteria. Absorptive and antiseptic power are essential, but aseptic, germ-free materials are indispensable. Formerly antiseptic chemicals were relied upon to accomplish the important office of freeing cotton from bacteria. Hence arose the system of antiseptic cotton and antiseptic gauze. But antiseptic cotton is not aseptic cotton. Cotton may have an antiseptic chemical and at the same time hold living germs entangled within its fibre. By its very nature cotton fibre is prone to reach after and absorb infection.

Aseptic cotton and aseptic gauze is that which has been subjected to a germ-destroying process—sterilization, and subsequently protected from infection.

In the publications issued from the Johnson & Johnson laboratories the many methods here employed for cotton sterilization have been given in detail—they include the use of chemicals, chemical vapors, gases, pressure and electrical energy. Moist and dry heat, formaldehyde, in fact all means and methods that have seemed feasible have been tried. Many of them were quickly abandoned for newer and more effective processes.



acuum Formaldehyde Sterilizer.—Two in operation.

At the present time the steam and formaldehyde vapors are the germ-d stroying agents for the most part here employed. There are in the laboratories four large sterilizers, each having a capacity of over a ton of absorbent cotton at a single operation. Thus ten tons of absorbent cotton, or its equivalent in gauze, could be sterilized every working day.

The important part of these operations is the use of vacuum chambers by the means of which penetration of the fibre and absolute sterilization is secured. Steam sterilization is carried out in the Johnson & Johnson laboratories as follows:

The main steam sterilizer in use was built after considerable experiment with various forms of apparatus.

This chamber forms a part of the dividing wall between the ante-room and the aseptic room. The chamber is rectangular in form, large enough to hold a wagon-load of goods. It is constructed with thick walls made of metal, asbestos and other non-conducting material. The interior is lined with steam pipe radiators for producing heated air within the chamber. The doors to the chamber open at both ends, one into the ante-room and the other into the aseptic room. These doors are steam-tight and held in place by ratchet screws. The chambers are fitted with steam supply and escape connections, gauges for pressure and vacuum, safety valves, exhaust valves, etc. Cars of iron, with trays, carry the articles to be treated. Supply pipes controlled by valves admit live steam to the interior of the chamber. The actions involved in the operations within the chamber are:

(a) Preliminary warming of the materials to prevent condensation.

(b) Removal of air.

(c) Circulation of saturated steam unmixed with air under pressure through

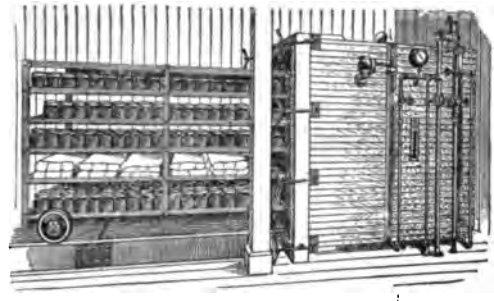
every fibre of the material, subjecting them to the highest possible action of this agent.

(d) Subsequent exhaustion of steam and substitution of heated air.

After the gauze or cotton passes into this chamber, the doors are closed and it then becomes a hot-air chamber. The air is then exhausted to a vacuum of 10 or 12 inches, saturated streaming steam is then let in; the temperature soon rises to possibly 240° F., and the pressure gauge indicates 5 or 10 pounds. The steam pipes are now closed; the vacuum pump is again started until the proper vacuum is obtained.

Again steam is turned on, and so in turn, currents of saturated steam follow each other through the vacuum for from one to two hours. Every part of the chamber is penetrated, every fibre is subjected to the action of this highest of bactericides. The most resistant form of germ life must be reached and destroyed.

The formaldehyde sterilizing chambers are steel cylinders closed with vacuum-tight doors which can be opened for filling or emptying; connected with each chamber is a vacuum syphon capable of emptying the chamber of air in 45 seconds; also attached to the chambers are formaldehyde regenerators for producing and purifying formaldehyde gas. The mode of operating is in brief as follows: Absorbent cotton or gauze, packed in cartons, is carried into the chambers and the doors closed. The vacuum syphon started and a vacuum of twenty inches drawn, formaldehyde gas under about one hundred pounds pressure is let into the chamber until the air is more than replaced by gas. As this gas is passing into a vacuum chamber, there is an immediate and effectual penetration of the fibres. Experiment has proven that under these conditions of vacuum pressure infecting bacteria can be destroyed in fifteen minutes. The fibres are in contact with the germ-destroying vapors for two hours, as a minimum time; often for a much longer period. After proper exposure the formaldehyde vapors are drawn out, fresh air let in the chamber and any excess of vapors neutralized and the cotton removed. As this cotton remains within its carton until taken out by the user, there is no danger of its becoming infected.



VACUUM STEAM VAPOR STERILIZER.—Two in operation.

The sterilizing apparatus here in use is no doubt the largest and most complete in the world and its germ-destroying capacity marvelous. Sterilized or germ-free cotton as a commercial product was here first produced, and here only is it produced on a large scale.

In one pound of cotton there are about 140,000,000 hairs or fibres. In Johnson's absorbent cotton every fibre is made chemically pure, perfectly absorbent, surgically clean, sterilized.

CAUTION
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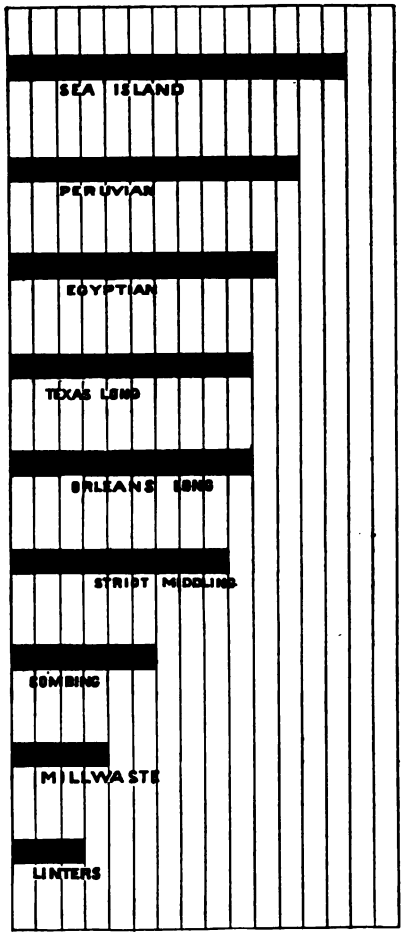
JOHNSONS ASEPTIC LABORATORIES NEW BRUNSWICK NJ

LENGTH OF COTTON FIBRES

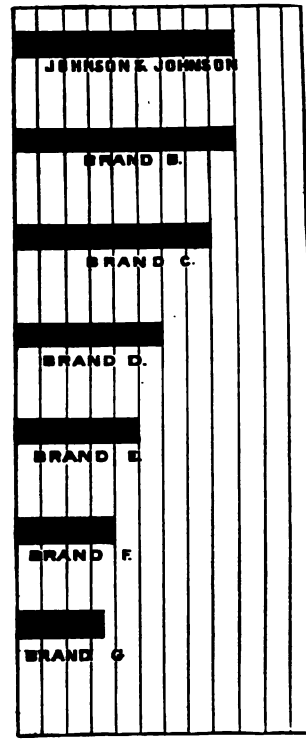


Length of Staple, raw cotton fibres, vertical spaces one-eighth inch.

In the drawings on this page are shown the lengths of raw cotton fibre, and of the fibres of absorbent cotton found in the American market. The vertical lines in this drawing, being about one-eighth of an inch apart, give a fairly accurate comparison of the length of staple. The three grades shown at the bottom of the first column are the refuse from the combing and carding machines, and represent the waste in the manufacture of high grade cottons and cotton cloth.

These short fibres are sold by the cotton mills at a very low price, and it is known that they find their way into certain grades of cotton sold for surgical purposes. The raw cotton fibres shown in this table are sold in the market at about the following prices:

Sea Island.....25 to 30 cents per lb.
Peruvian.....25 to 30 cents per lb.
Egyptian.....15 to 20 cents per lb.
Texas Long Fibre...10 to 15 cents per lb.
Orleans Long Fibre.. 9 to 14 cents per lb.
Middling Upland..7¼ to 8½ cents per lb.
Combings, Mill Waste and Linters.....
.....3½ to 6 cents per lb.



Length of staple of seven brands absorbent cotton in American market.

By calculating that the loss in weight in the process of cleaning and rendering the fibre absorbent will be fully one-third, and by adding five cents per pound for labor and chemicals, the cost of making absorbent cotton can be reckoned.

The table showing the length of staple of absorbent cotton found in the American market reveals the fact that two of the brands, viz: Johnson & Johnson and brand B, are made of a good grade middling upland; brand C is apparently made of a low grade upland containing some combings. Brands D, E, F and G represent grades supplied quite largely to hospitals and physicians' supply houses; they are known as "cotton mill and name brands of absorbent cotton." Evidently they are made almost wholly from mill waste.

TESTING ABSORBENT COTTON

METHODS USED IN THE LABORATORIES OF JOHNSON & JOHNSON

The increasing new uses for absorbent cotton require a fibre of absolute purity. The employment of this article in the filtration of delicate chemical solutions in bacteriological work, in the manufacture of soluble cotton, electrical work and other branches of art calls for a product absolutely free from all foreign matter and chemicals. It is needless to add that in surgery where the substance is to be used about the eye, abdomen, upon exposed delicate tissues, perfect purity is a prerequisite.

Examination of several market brands of absorbent cotton has revealed the fact that they are far from pure. Many which are apparently absorbent owe their absorbency to the use of chemicals, which have an affinity for water. Some are loaded to give weight, others in order to give the fibre a soft, silky feeling when rubbed between the fingers.

In gauze cloth, lint and bandage cloth a large array of substances used for filling, dressing, etc., may be looked for (and quite often found).

The U. S. P., 1890, gives the following test for the purity of absorbent cotton:

"Purified cotton should be perfectly free from all visible impurities, and on combustion should not leave more than 0.8 per cent. of ash.

"When purified cotton previously compressed in the hand is thrown on the surface of cold water it should readily absorb the latter and sink, and the water should not acquire either an acid or an alkaline reaction (evidence of proper purification)."

The Br. P., 1898, tests are as follows:

"It should readily be wetted by water, to which it should not impart either an alkaline or an acid reaction. On incineration in air it burns, leaving less than 1 per cent. of ash. It dissolves in concentrated solution of copper ammonio-sulphate."

Neither of these tests are proper criterions of the purity of absorbent cotton nor take into account the many substances added to absorbent cotton or to fabrics made from the same

The following methods for testing cotton, while not complete, have been devised or adapted for use in our laboratories. Still other tests will suggest themselves to laboratory workers who may have occasion to take up this work. As the important point is to know what impurities are present, quantitative methods have been omitted, and by reason of limited space only the most simple tests are noted, many of them in brief:

Preliminary Tests.

Treated with distilled water, alcohol, ether, chloroform, benzine or other volatile solvents (slightly warmed), no residue should remain after evaporation of the solvent.

Very few absorbent cottons in this market will stand this simple test; brands for which high claims are made will at once show cloudiness when treated with distilled water. Many brands, after treatment with these solvents, leave appreciable residues.

Bleaching Materials.

The presence of these substances is due either to faulty processes of bleaching, either by accident or design.

Take any amount of absorbent cotton or gauze (say 5 grammes), wash it well in a beaker with *distilled* water (for accurate work this water should be absolutely pure and all vessels perfectly clean), let the cotton stand for some hours in the water or boil for a few minutes. If the cotton is pure the water should remain perfectly clear. In some brands the distilled water in which the cotton has been washed at once shows cloudiness.

The water can then be tested for dissolved chemicals, the reaction being more sharp if the liquid is first evaporated to a fair degree of concentration.

Chlorides (from the chlorine of the bleaching bath). Add a few drops of a solution of silver nitrate; if chlorides are present, a white precipitate will form which is soluble in ammonia.

Calcium chloride (from bleaching bath or added to give hygroscopicity). If present in appreciable amounts, water will give a white precipitate with one or two drops of sulphuric acid.

Sulphuric acid. Add a few drops of a solution of barium nitrate or chloride; if this acid is present a precipitate will form—barium sulphate.

Salts of the fatty acids (soaps). Add a few drops of a solution of mercuric chloride (or other metallic alkaline salts) or strong acetic acid, and if soap is present a white precipitate will form. Nearly all commercial absorbent cottons give a reaction showing the presence of soap under this test.

If the water contains calcium, it will give a white precipitate with iodine phosphate.

If the water contains calcium, it will give a white precipitate by boiling only a few seconds with carbonate of ammonia.

Added Materials.

Filling, Sizing, Etc.

The number of substances used for dressing and filling gauze or added to absorbent cotton is so very large that only the more common can here be mentioned.

Sizing materials, added to gauze to give finish, make weight or to increase the apparent size of thread, etc.—Starch, flour, dextrin, gums, glue, albumen, casein, gums, gum tragacanth, gums senegal, gum arabic, etc.

Substances added to gauze and cotton fibre to make fibre soft, pliable and hygroscopic.—Glycerine, glucose, calcium chloride, zinc chloride, sodium and ammonium salts, magnesium chloride.

Loading materials.—Gypsum, chalk, magnesium sulphate, sodium and zinc salts, china clay, barium chloride, sulphate and carbonate.

This array of substances is so large that no general method of examination can be given; specific methods for each substance would require too much space.

After treatment with water, volatile solvents, ether, chloroform, alcohol, etc., the washings should give no reaction to litmus, phenolthalin, methyl orange or other indicator, nor show any residue upon evaporation.

Many of these substances are quite difficult of determination as to nature and amounts, as their reactions are obscure and the amounts being so small in comparison with the bulk of gauze or cotton tested.

In the case of gauze the most simple methods are first to examine the external or physical properties by simple inspection, when a practical eye can detect whether the fabric has been filled or weighted. A heavily filled gauze will lose much of its stiffness by rubbing between the fingers; if dust flies off in tearing the fabric this indicates filling.

The following suggestions from Deperies' "treatise on finishing" have been found useful:

"Care must be taken to note the quantity of water in the fabric, by weighing a piece of certain dimensions, drying until there is no further loss of weight, then re-weighing the dried piece. The difference of weight will give the quantity of water contained in the piece. Although we cannot make any immediate deduction from this experiment of the quality of the finish, we know that cellulose by itself is less hygrometric than wheat and other starches. If there be a great difference in the weight this is a certain indication of the cloth being starched.

"To know exactly how much foreign matter a cloth contains, we treat a piece of cloth say 250 centimeters square with distilled water containing malt or diastase, let it disaggregate, wash and weigh. In the first experiment the difference in weight will indicate the quantity of foreign substances deposited on the fabric, but even after this treatment certain insoluble soaps may still remain in the fabric, and it is necessary to again boil in weak acid to remove all fatty matters. Weigh again to obtain the actual total loss, and from the difference in weight the percentage of dry finishing substances is determined.

"We now proceed to examine the components: Two operations are necessary; first, with boil-

ing water for a few hours, this removes the fecula, starches, thickenings, gums, soluble salts, alum, sulphates, chlorides, etc., and mineral or earthy matters; secondly, by filtering, separate the soluble from the insoluble substances. Soluble substances are detected in the following manner: Evaporate part of the liquid, treat a few drops with tincture of iodine, which will reveal starchy substances by turning blue; if no starch be found, again concentrate the whole and add two or three times its volume of alcohol; glue, dextrine and gum are precipitated. Gelatine is detected by a tannin solution which precipitates it.

"To distinguish gum from dextrine we use the polariscope. Dextrine is diverted to the right, gum to the left. The mixture of the two can be sufficiently indicated by basic acetate of lead, which, when cold, precipitates gum, but not dextrine; when warm both are precipitated. If no precipitation be obtained, but an organic substance be still shown by the incineration on platinum foil, this indicates the presence of mosses, lichens, etc.

"Sugar is found by Fehling's solution before and after inversion; add to the tolerably concentrated aqueous solution a few cubic centimeters of pure hydrochloric acid ordinary concentration, warm in water bath in an apparatus with reflex condenser and treat with the copper solution.

"If it is desired to examine still more closely the soluble mineral substances, recourse must be had to the usual methods of analytical chemistry.

"In the residue insoluble in water we again find the earthy matters, which it is unnecessary to examine closer, as generally the most economical are employed, and china clay is one of the only substances which fulfills almost all the conditions, and, therefore, is also the most used; alabaster, gypsum and talc or French chalk are also found in this residue.

"Glycerine is found in the watery solution, and can be detected after the dampening of the drying process by the acroleine reaction which takes place after treating with sulphate of potash."

Compressing applied to raw cotton means the second pressing of the bale (after the first pressing at the plantation;) the pressure used is from 3000 to 4000 pounds per square inch.

Standard size of an American bale of cotton, fifty-four inches long, twenty-seven inches wide, sixteen inches thick, weight about 500 pounds.

ABSORBENT COTTON IN AMERICAN MARKET.

Examination of seven samples absorbent cotton sold in American market for surgical purposes:

Method of examination (see system of tests elsewhere given): A portion of cotton, generally about 100 grams, was washed in absolutely pure distilled water, the water concentrated to about half its bulk and the reactions noted.

REACTIONS.

Brand.	Ether Washings	Washings with Water	Silver Nitrate.	Barium Chloride.	Mercuric Chloride.	Ammonia Carbonate.	
Johnson & Johnson	No residue.	Crystal clear.	No cloud	No ppt.	No ppt.	No ppt	Pure cellulose. No foreign materials.
B.	Much residue.	Cloudy.	Cloud at once.	No ppt.	Ppt.	Ppt.	Contains soap and lime.
C.	Residue.	Slight cloud.	Slight ppt.	Precip.	Slight ppt.	Ppt.	Contains acid, lime and soap.
D.	Residue.	Cloud.	Ppt.	No ppt.	Ppt.	Ppt.	Soap and lime.
E.	Much residue.	Cloudy.	Cloud at once.	Ppt.	Ppt.	Ppt.	Acid, lime and soap.
F.	Residue.	Cloudy.	Cloud.	Ppt.	Ppt.		Acid and soap.
G.	Residue.	Cloudy.		Ppt.		Ppt.	Contains lime and acid.

Johnson & Johnson Straight Cotton. Strict middling grade. White. Sinks in two seconds. Found on examination to be absolutely pure cellulose, with no trace of chemicals or foreign material.

B—Claim on label, "Manufactured from selected staple, carefully carded, neutral and recommended for use in surgery, the arts, sanitary and technical purposes." Found to be fairly white, straight cotton fibre. Middling upland grade. Sinks in three seconds. The quick absorbency found to be due to soap.

C—Label, "Absorbent Cotton." Found to be made of linters and card flyings, full of leaf specks and threads. Very dusty, oil and iron stains. Sinks in fifteen seconds. Found to contain soap, lime and acid.

D—Claim on Label, "U. S. P. fine absorbent cotton. Perfectly neutral, thoroughly carded, quickly absorbent, free from all impurities." This brand was

made in a cotton mill of card flyings and mill waste. Fairly white, but very dusty and filled with specks. Sinks in five seconds. Found to contain soap and lime.

E—Claim on Label, "Perfectly neutral; free from impurities; U. S. P." Made in a cotton mill from waste and flyings. Fairly white, but dusty, containing many specks. Sinks in twenty seconds. Found to contain acid, lime and soap.

F.—Name brand from physicians' supply house. Made in cotton mill of waste and linters. Dusty, full of specks, oil and iron stains. Sinks in eight seconds. Contains acid and soap.

G.—Name brand wholesale druggist. Made of very poor linters and combings. Yellow, full of dust and trash. Sinks in thirty seconds. Found to contain lime and acid.

COTTON IN THE SPANISH WAR.

The war with Spain presented the first opportunity for applying modern surgical methods to the wounded in war, but its brief duration and limited number of engagements precluded any extended observations of the applicability of the newer surgery to such conditions. However, sufficient opportunity was given to show the value of modernized cotton as a factor in wound dressing.

Before hostilities had begun the medical departments of both the army and navy arranged to secure supplies of cotton surgical dressings prepared by the most approved methods.

To meet the unexpected emergency, the laboratories of Johnson & Johnson were compelled to run day and night and Sunday continuously. They prepared for the first time for use in war sterilized absorbent cotton, sterilized gauze, sterilized bandages, sterilized ligatures, specially packed for use on the field of battle, giving to the surgeon dressing facilities and appliances equaling those of the best hospital, and to the wounded soldier the benefits of the highest achievements of surgery.

Messrs. Johnson & Johnson have been complimented by surgeons and officials of the army and navy for their energy and foresight in thus supplying aseptic wound dressing material of the highest grade. And not the least pleasing has been the personal thanks of many returning wounded soldiers who fully testified that life and limbs had been saved by the prompt application of Johnson & Johnson's sterile dressings.

The most prominent factor in wound dressing in the war with Spain was the use of the first-aid packet. This was supplied to every soldier, and by this means a certain amount of dressing material was always present. Incidentally, in the most prominent battles near Santiago the first-aid packet became the sole dressing material at hand, other supplies having become exhausted.

In addition to this packet, Johnson & Johnson supplied gauze bandages, each one separately wrapped and sterilized and sealed; Bernays' aseptic sponge, which proved of inestimable value as a sponge, a mop, a compress or a substitute for absorbent cotton itself. They also prepared iodoform, corrosive sublimate and plain gauze in meter and half-meter packets, compressed into small bulk, sterilized and sealed.

Johnson & Johnson also supplied the army and navy with absorbent cotton compressed under heavy pressure to reduce bulk. (In addition to the above-named cotton goods, the army and navy were supplied with Red Cross Ligatures, each ligature sterilized, packed and sealed in a separate envelope). Exact information as to the amount of absorbent cotton in various forms purchased during the Spanish war could not be obtained at this writing, but it is believed to be somewhat as follows:

First-aid packets	900,000
Cotton contents: 1 esmarch bandage, 1 roller bandage, 2 gauze compresses.	
Gauze bandages	576,000
Absorbent cotton, compressed, 1-ounce packages	75,000
Iodoform gauze	71,000
Sublimate gauze	125,000
Bernays' aseptic sponge (compressed cotton)	950,000
Red Cross Ligatures, catgut	350,000
Red Cross Ligatures, silk	900,000

All this material supplied from Johnson & Johnson's laboratories was in sealed packages; sterilized and aseptic.

The value of these aseptic cotton dressings in this war is shown in the following letter:

WAR DEPARTMENT,
SURGEON-GENERAL'S OFFICE,
WASHINGTON, Feb. 27, 1899.

FRED. B. KILMER, ESQ.,

Editor Red Cross Notes, New Brunswick, N. J.

Sir—I am instructed by the surgeon-general to acknowledge the receipt of your communication of the 20th instant, requesting information regarding the use of sterilized and aseptic material during the late war. In this connection, Major L. A. La Garde, Surgeon United States Army, late in command of Reserve Hospital, Fifth Army Corps, Siboney, Cuba, states that the use of dressings in field service as distributed to the medical department of the Fifth Army Corps, in cases, from the supply depots, proved of great value as a safeguard against sepsis and as a ready method of supplying a complete assortment of aseptic materials for the use of the surgeon in war. The comments of the surgeons on the operating staff of the reserve divisional hospital at Siboney were most favorable on the value of these dressings. The preparation of the dressings, though never examined bacteriologically, conveyed the impression that the makers had resorted to the latest and most improved methods of sterilization.

In the absence of statistics, it may be sufficient to state that in the opinion of the army surgeons who were present with the expedition against Santiago not more than two or three per cent. of gunshot wounds resulted in suppuration, this being prevented by an excellent system of first aid, the free use of sterile dressings and the humane character of the Mauser bullet wound.

Very respectfully,
E. L. MUNSON,
Capt. and Asst. Surgeon United States Army.

A cotton "tie" is an iron band passing around the bale, in England this is called a "hoop."

American cottons may be divided into four important classes: Sea Island, New Orleans, Upland, Texas.

"Bumble-bee cotton" is cotton grown in the northern portion of the "Belt" and which is picked by the pickaninnies.

COTTON USED IN SURGERY IN THE UNITED STATES.

The following table illustrates the great increase in the consumption of cotton incident to the change in surgical methods—antisepsis, asepsis, etc.:

The figures for 1878 and 1888 are approximate estimates; those for 1898 are from careful computations.

	1878.	1888.	1898.
Raw cotton, lbs.....	1,000	5,000	20,000
Absorbent cotton, lbs.	5,000	250,000	3,000,000
Bandages, lbs.....	10,000	20,000	100,000
Gauze, yds.....	1,200	120,000	20,000,000
Lint, lbs.....	50,000	45,000	40,000
Misc. dressings.....	500	2,000	20,000

Peruvian cotton is largely consumed in the manufacture of "all wool" cloths.

RED CROSS COTTON.

Careful surgeons have found by experience that the absorbent cotton prepared by Johnson & Johnson is absolutely pure, surgically clean, aseptic and altogether reliable for dressing wounds.

The blue carton with a label bearing the Red Cross trade-mark, containing sterilized cotton, being an ever-present sight on the surgeon's operating table, have grown in the minds of operators, nurses and patients, to be emblems of absolute reliability, and thus Johnson & Johnson's absorbent cotton has attained as a common title "Red Cross" cotton.

The red cross is the trade-mark of Johnson & Johnson and appears on the labels of all their goods as a guarantee of the genuineness of the products. They also originated the blue carton and the blue tissue paper between the layers of cotton. But other makers of absorbent cotton, presumably to make their cotton appear to be as good as Johnson & Johnson's, roll their cotton in blue tissue, put it in a blue carton, and worse still, print a label bearing a red star, a red square, a red wheel or a red something that is intended to look like the genuine "Red Cross" cotton. All this is flattering to the originators. It is, however, an unfair and an unlawful means of gaining trade, more than all, it is often very disappointing to the surgeon.

The genuine Johnson's absorbent cotton, in a blue carton, bearing their red cross trade-mark is absolutely pure cotton, it is germ-free, sterilized—it costs no more than other kinds. It will be well, therefore, for surgeons to look for the red cross and the signature of Johnson & Johnson when this kind is desired.

COTTON REVOLUTION

Absorbent cotton as related to surgery had its origin in the birth of Listerism. The first methods of Lister were cumbersome, but from the eternal truths which he propounded, antisepsis and asepsis have been evolved; so the revolution and evolution of surgical methods has developed and perfected cotton.

Cotton fibre, cotton gauze cloth in the first days of Lister was non-absorbent, unclean, infected and useless. Now the highest form of cleanliness is typified by surgically clean absorbent cotton, surgically clean absorbent gauze.

The work of Johnson & Johnson toward the advancement of the art of surgery is well exemplified in the many improvements they have made in the preparation of surgical dressings into which cotton fibre enters as a component part.

Absorbent Cotton, packed in a Blue Carton, with a Red Cross label. Originated by Johnson & Johnson.

Among the many improvements made by them the following may be worthy of special mention: Johnson & Johnson substituted automatic machinery for handwork in all operations connected with the preparation of material for wound dressings. They adopted sterilized and aseptible apparatus in the place of manual manipulation. Changed intermittent methods of preparing surgical material to that of a continuous process whereby dressings are under aseptic conditions and subjected to repeated sterilization during their entire time of preparation. They manufactured and handled wound dressings in rooms and buildings especially built, fitted up and solely adapted to this purpose. They substituted for unskilled labor operatives especially trained in surgical cleanliness.

Linton Moist Gauze. Originated by Johnson & Johnson.

They applied the principles, rules and systems of aseptic technique to the preparation of surgical material.

Devised processes whereby, in the preparation of surgical material, dirt, dust and bacteria are removed, excluded and destroyed.

Devised methods for packing and hermetically sealing surgical dressing material after being freed from bacteria in a manner that would admit their being handled in commerce and dispensed without risk of contamination.

Devised packages for surgical dressing material that could be opened by the surgeon and a portion of the dressing removed without contamination.

Absorbent Cotton in layers with tissue between layers. Originated by Johnson & Johnson.

Introduced to the profession cotton and gauze sterilized by dry heat before the words sterile and aseptic were a part of the surgeon's vocabulary.

Adopted steam sterilization, vacuum pressure sterilization, formaldehyde vapor sterilization for cotton and gauze

surgical dressings. Made antiseptic and aseptic sterilized cotton dressings distributable through commerce.

Made cotton surgical dressings fulfilling the most advanced requirements of surgery.

The following is a partial chronological list of the improvements in cotton dressings made by Johnson & Johnson:

1886–87—The cotton of the market was only partially absorbent; was packed in wads and bunches, full of dust. Johnson & Johnson devised new machinery and methods for manufacturing; made cotton fully absorbent; rolled cotton in layers with tissue paper between each layer; packed in blue cartons. Introduced Linton moist gauze as an improvement over the non-absorbent harsh resinous and fat gauzes of Listerism.

Linton Gauze Bandages, as used by U. S. Army and Navy, each bandage wrapped, sterilized and sealed, originated by Johnson & Johnson.

Introduced moist antiseptic cotton.

1888—Introduced improvements in methods of packing and protecting gauze and cotton dressings against infection.

1889—Introduced the packing of gauze dressings in hermetically sealed glass jars. Improvements in medicated gauze.

1890—Introduced sterilization of cotton and gauze dressings by dry heat. Trained and uniformed employees. First compression of packages.

1891—Introduced wrapping and sterilization of gauze bandages. First sterilization of cotton dressings by pressure. Introduced Lintine, felted cotton fibres in sheets like cloth; Cottonoid, sheet cotton fibre for dental use.

1892—Adopted continuous methods for handling dressings. Introduced aseptic apparatus, aseptic rooms, bacteriological tests applied to dressing material. Introduced aseptic methods for all operations. Introduced gauze woven for surgical purposes instead of factory-made cheese cloth.

1893—Introduced steam sterilization for surgical dressings, sealing in germ-proof containers under sterilization.

1894—Introduced vacuum sterilization for surgical dressings.

1895—Introduced Bernays' aseptic sponges, compressed cotton disks, gauze in compressed packages.

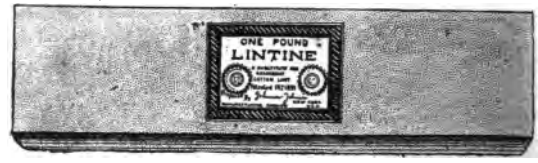
1896—Introduced bi-sterilized dress-

Johnson's Aseptic Dressings.
BISTERILIZED
Are prepared in Aseptic Laboratories by operatives skilled in aseptic work under the supervision of Graduate Surgical Nurses. They are ready for use without other preparation.
PROCESSES.
1. Sterilization of utensils and apparatus.
2. Personal preparation of operators.
3. Sterilization of containers.
4. Sterilization of dressing materials.
5. Handling and packing under strict asepsis.
6. Resterilization of the finished dressings within their containers.
7. Sealing hermetically during final sterilization.
8. Check bacteriological tests.
Dealers should not break the seal or open the package. Surgeons and nurses should handle the dressings only when hands or instruments have been disinfected.
LINTON
MOIST GAUZE
IODOFORM
10%
Hermetically sealed
BI-STERILIZED
FIVE YARDS
PREPARED BY
Johnson & Johnson
ASEPTIC LABORATORIES
NEW BRUNSWICK, N.J.
U. S. A.
Do not expose to light or heat
ASEPTIC PACKAGE
LINTON MOIST GAUZE
Iodoform 10%
STANDARD STRENGTH
Sterilized absorbent gauze saturated with a stable emulsion containing 10 per cent. of Iodoform
The impregnation is uniformly and accurately adjusted upon a basis of 10 parts of Iodoform to ninety parts of the gauze. Approximately each square foot contains eight grains of Iodoform
In ordering specify
LINTON MOIST DRESSINGS
Johnson & Johnson

LABEL FOR LINTON MOIST GAUZE.

ings handled under strict aseptic regulations, sealed during sterilization.

1897—Introduced sterilization by formaldehyde vapors in vacuum under pressure, sending out all dressings sterilized and aseptic, sealed during sterilization and packed in germ-proof packages.



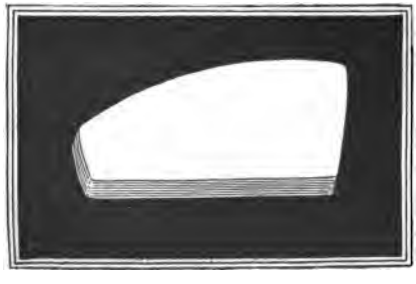
LINTINE

Absorbent cotton felted into sheets. Originated by Johnson & Johnson. Quickly made into any form of dressing, or shaped into bandages, pads, tampons, cushions.

1898—Introduced sterilized and aseptic dressings for use in armies and navies in war, compressed, put up in small packets for use on the battlefield or in

Linton Gauze Bandages, Sterilized. One Dozen in Box. Originated by Johnson & Johnson.

emergency. Introduced absorbent cotton, absorbent gauze absolutely freed from chemicals, fillers and all foreign matter. Introduced absorbent cotton rolls, aseptic dental napkins, cotton dental specialties, aseptic towels, antiseptic expectorating handkerchiefs.



NASAL TAMPONS.

Simpson's Nasal Tampons for nasal and aural surgery. Compressed cotton fibre. Originated by Johnson & Johnson.

Absorbent Cotton, square inches surface to one pound..... .3800.
Absorbent Lint, square inches surface to one pound..... 4600.
Absorbent Lintine, square inches surface to one pound.....6500.

DRESSINGS MADE OF LINTINE.

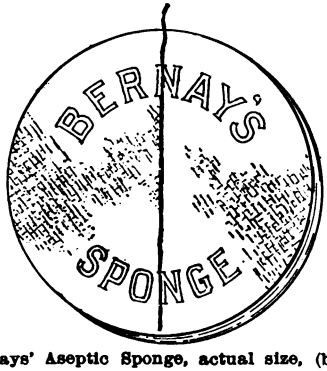
Lintine has a thousand more uses than gauze, cotton or lint.

Some varieties of cotton contain as high as seven per cent. water of hydration.

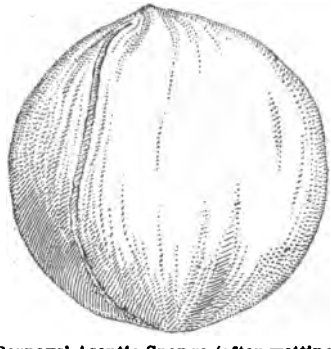
Red Cross Aseptic Towel, for emergency use. Originated by Johnson & Johnson.

Red Cross Gauze, compressed, sterilized and sealed in one yard packages for emergency use. Originated by Johnson & Johnson.

Red Cross Gauze in 25 and 100 yard rolls. Packed in patent containers; can be used without contamination. Originated by Johnson & Johnson.



Bernays' Aseptic Sponge, actual size, (before wetting), useful as sponge, pad or compress.

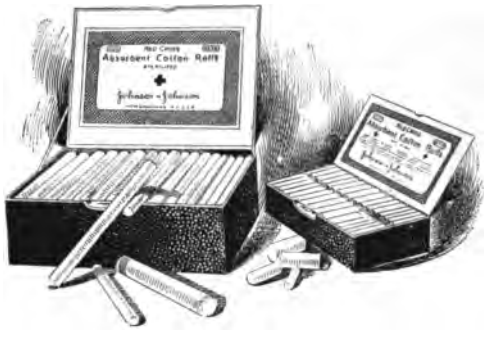


Bernays' Aseptic Sponge (after wetting.)

BERNAYS' ASEPTIC SPONGE OF COMPRESSED COTTON FIBRE.—Originated by Johnson & Johnson.

RED CROSS ASEPTIC DENTAL SPECIALTIES

(COTTON)



Aseptic Absorbent Cotton Rolls for Dental Surgery.

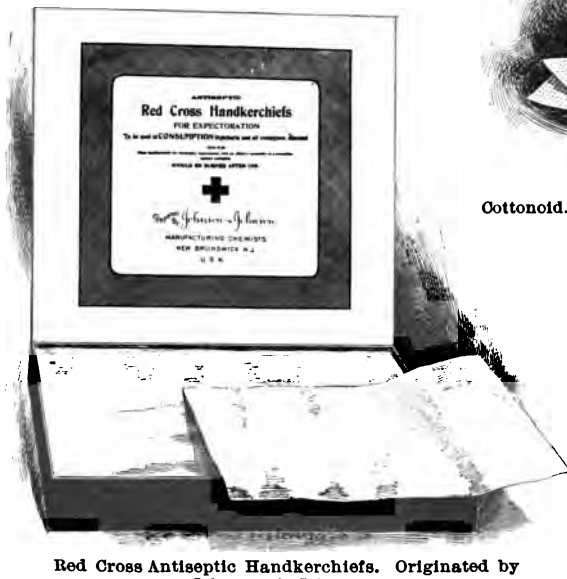
Red Cross Aseptic Dental Napkins, for dental and surgical uses. Originated by Johnson & Johnson.

Absorbent Cotton Rolls. Short Cotton Rolls. Non-Absorbent Cotton Rolls.

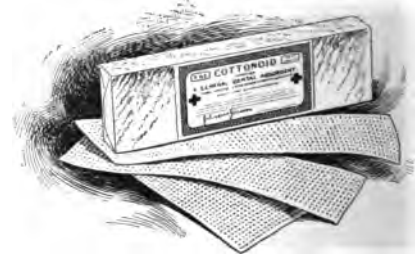
Aseptic Dental Napkins—Cheaper than washing the old kind.

Cottonoid—A Felted Absorbent Cotton.

Salivoids—Compressed Cotton Saliva Pads for stopping the ducts.



Red Cross Antiseptic Handkerchiefs. Originated by Johnson & Johnson.



Cottonoid.—Originated by Johnson & Johnson.

RED CROSS

Handkerchiefs

(ANTISEPTIC)

For receiving expectoration in consumption and other contagious spittle diseases. Filled with an effective germicide. Cleanly, safe and effective. To be burned after use.

H. B.

RED CROSS NOTES

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SERIES II. NEW BRUNSWICK, N. J. Nº 9.

Quality Guaranteed
J. & J.

BOSTON MEDICAL
FEB 13 1900
LIBRARY

A STUDY IN COTTON.

STERILE
J. & J.

The Cheshire Cat and Its Grin.

The late Lewis Carroll told a story about a Cheshire cat which had the marvelous faculty of separating itself from its grin. Sometimes you saw the grin, and sometimes you saw the cat.

The wonders of chemistry far surpass those of fiction. For instance, take Iodoform. Who of us, five years ago, would have thought it possible to produce Iodoform without its characteristic odor? But it has been done. Send for literature and sample.

We take pleasure, therefore, in presenting Iodoform Johnson-Odorless, a substance identical with Iodoform, but without its smell.

In other words we have permanently separated the grin from the cat.

JOHNSON & JOHNSON

NEW BRUNSWICK, N. J.

RED CROSS NOTES

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SERIES II, No. 9. NEW BRUNSWICK, N. J. 1899.

TO THE READER.

Red Cross Notes is issued somewhat regularly from the laboratories of Johnson & Johnson. Each issue is sent to a long list of regular readers; in the most cases such persons have registered a request, that every number be sent to their address. In addition to this, Red Cross Notes is from time to time sent to many persons because they are recognized as leading practitioners of medicine, of pharmacy or of allied branches. The responses received from our readers tend to show, and there is every reason to believe, that our little publication finds a welcome. In fact it is read and reread in many instances, and finally preserved for future use.

The aim of this publication is twofold:

First—To give in brief form items of interest, pertaining to the particular branch of art in which we are engaged.

Second—To give exact information respecting the products of the Johnson & Johnson laboratories.

It is worthy of note that for the most part the matter contained in these columns is entirely orignal; furthermore much that is herein published cannot be found elsewhere; our ultimate end being to produce a journal that will fully repay perusal.

Accordingly, we have arranged for the future new features which will greatly enhance the usefulness of our Notes. That it may fulfil this object we are constrained to ask that all who receive it, will from time to time, freely express their candid opinions, whether as in criticism or commendation, upon its contents.

COTTON NOTES.

The United States is the most important cotton growing country in the world. Of all that is grown, American cotton is the most useful, and it controls the price of all other cottons. The next in order of importance are those of India, Egypt, China and Brazil.

Cotton is referred to in the book of Esther, wherein the court of the palace of Shushan is said to have been hung with "white, green and blue (cotton) hangings." (Revised Version.) Some have thought that the bandages spoken of in the parable of the Good Samaritan must have been cotton cloths.

Cotton, though known to the ancients, did not reach commercial supremacy until it came to be the great staple production of our sunny South. It there received a popular personification and became, as was supposed, an all potent power in the American Union, under the title of "King Cotton."

For three thousand years cotton had been used for covering wounds: but somewhere in the beginning of antisepsis, cotton fibres were made absorbent—an improvement that will remain of value until the end of time.

Guerin, who first covered wounds with cotton; and Lister, who first applied antiseptic dressings, used non-absorbent cotton fabrics.

In his earlier applications, Lister covered the fabrics with paraffine, resin and fat, used as vehicles to carry the antiseptics. The most important requirement, absorbency, was not foreseen.

Cotton fibre requires special selection and treatment to render it suitable for surgical use. It is evident, that so-called absorbent cotton from cotton mills is prepared without any regard or knowledge of the requirements of surgery.

Cheap absorbent cotton is offered full of broken fibres, knots, threads, dust, leaves and loaded with fillers to make weight, on the one claim of cheapness.

The leading feature of Johnson & Johnson's absorbent cotton is that it is prepared in a laboratory, where the law of surgical cleanliness guides and over-rules all things.

Johnson & Johnson's absorbent cotton is clean and pure in every fibre from beginning to end.

Johnson & Johnson's absorbent cotton is sterilized in its last and finishing process: Every ounce and every pound leaves the factory aseptic.

COMMERCIAL ABSORBENT COTTON.

Absorbent cotton, likewise absorbent gauze, absorbent bandages and other like articles made of absorbent cotton fiber are comparatively new things in commerce. Fifteen years ago there was no maker who could produce as much as one hundred pounds at a time. In fact, for the most part all such materials were made in hospitals by hand work.

I have before me the *Druggists' Circular* for 1881 where absorbent cotton is quoted in pound packages at one dollar and twelve cents per pound, and in small packages at two dollars and twenty-five cents per pound.

Listerism and improved methods of surgery really began to be generally adopted in this country about 1886, and this marks the date when absorbent cotton began to be an article of commerce. From this time on the consumption has grown steadily. The following table (the figures of which are probably low enough) gives us a fair idea of the growth of this industry in the United States:

COTTON USED IN SURGERY IN THE UNITED STATES.

	1878	1888	1898
Raw cotton, lbs.....	1,000	5,000	20,000
Absorbent cotton, lbs.	5,000	250,000	3,000,000
Bandages, lbs.....	10,000	20,000	100,000
Gauze, yards.....	1,200	120,000	20,000,000
Lint, lbs.....	50,000	45,000	40,000
Misc. dressings.....	500	2,000	20,000

The wonderful progress made in surgery has thus created a new outlet for cotton and the making of this class of material has been transferred from the hospital to the factory. We have a new industry, with nearly a dozen producers, some of whom are able to turn out several tons of cotton and miles upon miles of gauze and bandages in a single day.

Absorbent cotton is now an article of commerce, sold in drug stores, dry goods stores, millinery stores, barber shops, and in fact you can buy absorbent cotton in every sort of shop. This increasing consumption has quickened competition and reduced the cost of manufacture, and in consequence the selling price. Absorbent cotton has also been greatly improved since it became an article of trade.

When I started Johnson & Johnson in the making of this article the cotton then in use was yellow and dirty. It was not absorbent; it was put up in wads, packed in any sort of a box or wrapped in loose paper. In fact if the material then in use had not been improved upon it would have never been of much value to the surgeon, and certainly would never have been found in such general use as we find is the case to-day.

Johnson & Johnson made the initial step by producing cotton that was white, clean and absorbent, but the greatest improvement of all was in or about the year 1886. We invented a system of machinery by which cotton could be carded and rolled automatically with a layer of tissue paper between each layer of cotton, the object being to keep the several layers separate and apart for convenience in handling and use. It proved of the greatest service to all consumers; cotton had never been prepared in this way before, and it opened the new era.

We are firm in our opinion that this invention has been the important factor in creating the immense traffic that now exists in this product. Certain it is that this improvement in absorbent cotton made its use possible in surgery and proved an important adjunct to the advancement of the art.

In order to put our cotton upon the market in a style separate and distinct from all other known brands then in the market, we used a blue tissue paper and blue cartons, with a red cross upon the same. This was entirely different from anything then in the market. It is an interesting fact that absorbent cotton, rolled in blue tissue paper and packed in a blue carton, originated with the im-

proved surgical methods in our country. Rival producers saw that this was the only kind of cotton that the surgeons wanted, and that this was the kind the trade demanded, so to make their product sell they at once imitated the rolling in blue tissue and packed it in the blue cartons. At the present time every brand of absorbent cotton upon the market is put up exactly in this style, some even going so far as to put our red cross or a simulation of the same upon the package.

Now I do not claim that Johnson & Johnson have, or ever had, the sole right to roll cotton in tissue paper or pack it in a carton. I do feel that they have always had the sole moral right to the use of the blue tissue paper and blue cartons. I also believe that those who have imitated this peculiar method have done so for the purpose of deceiving the buyer, and for obtaining a sale for their wares upon the reputation of the originators. In saying this we do not wish to lay any fault at the doors of the wholesale or retail dealers who purchase such products without thinking how closely the original makers were being imitated, but we believe that all fair-minded dealers should make a demand upon other manufacturers that they should put up their goods in a style, totally and wholly separate and distinct from that used by Johnson & Johnson, or any other manufacturers.

Periodically we hear of some cottor mill or dealer in cotton-mill waste coming into the market with a new brand of absorbent cotton. Why do they do this? If they used good cotton they could get a better price for their cotton in the non-absorbent form. For it is a fact some so-called absorbent cotton is sold at a lower price than the ordinary untreated cotton batting. It is very plain that these mills have a lot of waste stuff that is too dirty, too rotten, too poor to make into regular cotton; they bleach and treat it, load it up with chemicals and find a market for it under the name of absorbent cotton. This is the kind one finds put up under the buyer's name and supplied to hospitals at such awfully low prices.

A little intelligent figuring will show the inside of the mill waste cotton business. Strict middling cotton is quoted to-day at 8 cents; this is the lowest grade that should ever be used in making absorbent cotton; freight commissions, difference in weight, bagging, etc., will add one cent per pound. The loss in opening, cleaning out seeds, sand, dirt and poor fiber will add one cent more even if the grade is standard. There will be a further loss of two cents per pound in bleaching, rendering absorbent (removal of wax and coloring matter), dyeing and carding. This gives us four cents to be added to the first cost. Then some forty operations are necessary to prepare absorbent cotton for surgical purposes. Done in the latest sort of a way by the best machinery, these manipulations add from six to eight cents per pound. Handling by aseptic methods as it is done in Johnson & Johnson's laboratories adds more than a cent a pound to the cost over that of sterilization (which is only done by them) and costs two cents for each pound. With us the actual cost of labor, without counting anything for stock, is more than the selling price of certain kinds of mill stuff.

The cotton is made to sell, man is no philanthropist, neither does he steal his cotton. He begins with waste worth two or three cents a pound, leaving in all short fibers, dust, dirt and leaves. By making a short cut and omitting some of the usual operations he gets it white enough to pass, loads it with soap and salt to make it sink and make it weigh, loads it to make it sell, labels it "Pure Absorbent Cotton," and into the trade it "goes."

Would any surgeon who deserves the name, a surgeon in any sense of the word, who has made name and success by his skill, think of having a poorly-made instrument, or using a brand of ether or chloroform, whose only claim for merit was that it was a few cents lower in price than some other kinds? Most certainly not. In these things they buy a standard brand with the maker's name that is known to be the best, no matter what the price. And yet the sterility of the dressings is more important than all the rest save the cleaning of the hands.

It is therefore a matter of wonder that some of these men, keen in every other respect, allow themselves to be fooled when they come to select absorbent cotton or gauze, the most important part of their dressing material. They bring to the operating room the best instruments and appliances that art can produce or that money can buy; they invoke all the skill that is known to science, and then they will cover the wound with absorbent dressings the sole merit of which is that they are cheap.

Between cotton made of clean straight cotton fiber and one made by a cotton mill, of old waste, or between cotton made for surgery and cotton made to sell, there is an important difference that buyers seldom consider. It is this: Good cotton is elastic, springy, does not pack and lie hard on the flesh, it is alive and lies up, forming a soft absorbent cushion. Cotton made of waste, flyings, old rags, is dead; its life was gone before it was made into absorbent cotton, and when wet, it packs down in a wad and lies like a lump of clay. It will take more of the poor cotton to cover a given surface, it will be uncomfortable and require constant renewal. Good absorbent cotton will cover more surface, a less amount will be required and will give better results.

In the face of this the wholesaler wants cheap cotton, many retailers want cheap cotton, surgical supply dealers want cheap cotton, hospitals buy cheap cotton, and there is a cry for cheap absorbent cotton and gauze from Monday morning to Saturday night.

One of these days there will be a reaction in this trade and the surgeons will find out and everybody will find out that when it comes to absorbent cotton poor goods don't pay. They will learn that while modern surgery has wrought miracles, its results would have been more wonderful if more attention had been paid to so small a detail as the absorbent cotton used in dressings. I fear that many a bad result, many a mysterious symptom in the patients, many an hour of pain, and perhaps many a death has followed the use of poor absorbent cotton. Does it not stand to reason that absorbent cotton made up of short fibers filled with dirt, sand, starch, glue, soap, lead, and ten thousand kinds of things is not the most desirable thing to place upon a wound? This is what it means when you use cheap absorbent cotton.

From the very beginning of the career of Johnson & Johnson in making absorbent cotton they have held to one single purpose, namely, that absorbent cotton was to be used for wound dressing and must be made and marketed fit for the most delicate uses of surgery.

To carry out this idea has required an investment of a half million of dollars; they have raked the earth for the best processes and the best employees; built buildings, fitted up rooms better than those in the finest hospitals, trained operators, established bacteriological and chemical laboratories. The outfit for this one purpose of making surgically clean absorbent cotton has cost no end of time, energy and money to bring it to its present high grade perfection.

Now it seems reasonable that the facilities of a laboratory like this, the whole

organization of which is adapted to the production of surgical dressings, are certainly more perfect than those wherein such work is done incidentally or have in view only the commercial or selling end.

Cotton fiber made absorbent and put up in the shape of absorbent cotton, gauze, bandages and other forms is sold in every corner of the globe. The great consumption is for the most delicate purposes that can be imagined or described, in chemical and bacteriological laboratories. And the most particular use of all is dressing wounded tissues.

An article of commerce, bargain and sale, truly; but it should be an article of exalted commerce. Every buyer, every seller, every user should hold the maker to the very highest point of quality, purity, cleanliness, fitness for its important use.

R. W. JOHNSON.

APPRECIATED EFFORTS.

Bowling Green, Ky., Sept. 26, 1899.

To Johnson & Johnson,
New Brunswick, N. J.

Dear Sirs—Have been much pleased with samples of your products sent me. Appreciate your efforts to relieve the busy surgeon in supplying his needs, also in aiding his results by good aseptic dressings. Do you make an aseptic eye mask for use after cataract operations? Not necessary to say aseptic, as you make no other kind of dressings.

The towels offered, or in fact anything you send, is appreciated with thanks.

Very truly,
J. O. CARSON.

I limit my work to that of eye, ear, throat and nose.

"Linton Moist Gauze Products have been eminently satisfactory to all scientific surgeons. Continue to lay the greatest importance and stress on, and give the greatest attention to, the purity, moisture, and particularly the sterility of your wound dressings."—A. C. BERNAYS, M. D.

"The introduction of Linton Moist Gauze Dressings, consisting of gauze and cotton, marks the beginning of antiseptic surgery in this country. It was the first great forward step from the orginal Lister type of dressing."

Linton Moist Gauze Dressings have kept step with the most advanced surgical practice.

THE COTTON BELT.

"Way down South in the land of Cotton."

From that portion of our country popularly known as "Dixie's Land," or the "Sunny South," the world principally obtains its supply of cotton. The cotton-growing region, comprising fourteen states, embraces something like 600,000 square miles, 20,000,000 acres of which are planted in cotton.

While the cotton plant is grown throughout all this region, in some districts it is a staple production, while in others it is simply cultivated as surplus crop.

The population of this region in 1890 was slightly more than 14,000,000, of which about 8,000,000 were whites, and 6,000,000 colored.

It has been said of these people that "the men are more genial, the women more beautiful, and all are more sentimental, generous and hospitable than any other people on earth."

Every 100 of this population produces 53 bales of cotton and an average of 254 pounds of cotton per capita.

An important factor in this production is the aid of the "mountain canary," otherwise known as the mule. The highest average crop of cotton in this section is one bale (500 pounds) per acre. The average for the whole belt is less than 250 pounds per acre.

Only about five per cent. of available land in this region is devoted to cotton, therefore by multiplying the present crop by twenty, one can estimate what an enormous crop of cotton fiber might be produced in this land of cotton.

ACREAGE IN COTTON.

Season of 1898.

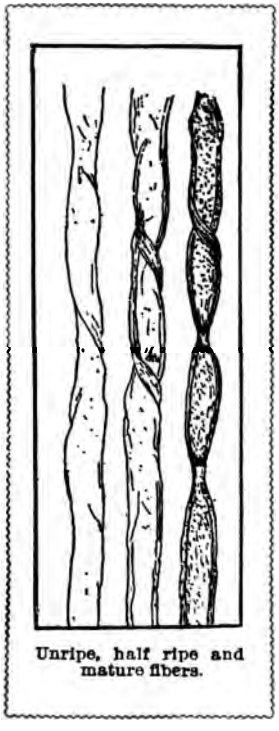
States.	Number of Acres.
North Carolina	1,211,266
South Carolina	1,908,766
Georgia	3,325,439
Florida	223,487
Alabama	2,601,082
Mississippi	2,667,466
Louisiana	1,158,222
Texas	6,591,041
Arkansas	1,506,400
Tennessee	870,369
Indian Territory	404,093
Missouri	68,321
Virginia	46,563
Oklahoma	74,411
Total	22,656,956

A STUDY IN COTTON.

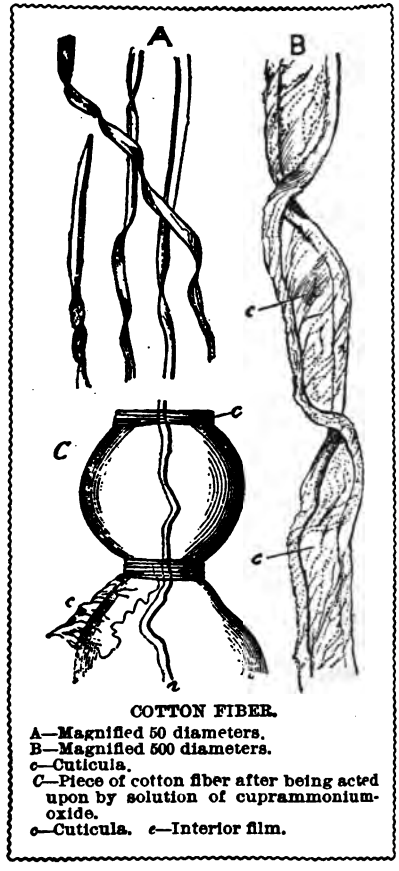
Cotton Under the Microscope.

Structure of Cotton Fiber.

By treating cotton fiber with what is known as Schweitzer's reagent, it may be separated into four distinct constituents; (1) the outside membrane which does not dissolve in the reagent; (2) the real cellulose beneath, which dissolves, first swelling enormously, and dilating the outside membrane; (3) spiral fibers apparently situated in or close to the outside membrane, which are not soluble in the copper solution, and (4) an insoluble substance occupying the interior or cone of the cotton hair.



Unripe, half ripe and mature fibers.



COTTON FIBER.
A—Magnified 50 diameters.
B—Magnified 500 diameters.
c—Cuticula.
C—Piece of cotton fiber after being acted upon by solution of cuprammonium-oxide.
c—Cuticula. e—Interior film.

End section of cotton fiber, showing cellular openings. A and B are mature ripe fibers, the others are unripe immature fibers.

THE BIRTH OF A COTTON FIBRE.

In from eight days to a fortnight after sowing the young cotton shoot appears; in a few hours afterward the seed end of the stalk is raised out of the ground, disclosing two leaves folded over and closed together. These leaves gradually separate and the plant rapidly develops, in a similar manner to ordinary shrubs, to maturity. From time to time during its growth we note first the formation of the leaf; second the flower stalk; then at the extremity of the stalk comes the blossom pod encased with three leaf-shields. Gradually this pod expands until it is about the size of a bean, when it bursts and displays the blossom. The flower remains in full development for about twenty-four hours, when it revolves upon its axis and twists itself off. After the fall of the blossom, a small three or four celled capsular pod of a dark green color is disclosed, which increases in size until it reaches that of a filbert. In the meantime the seeds and filaments of cotton have begun their formation inside the pod.

The formation of the seed within the pod is effected by the successive deposits of layers of a solid waxy substance. In the center of these layers a small cavity is left. This cavity is filled with a liquefied, oily and milky substance which becomes hard as the growth ceases.

The fibre begins to form on the surface of the seeds at the end opposite to that by which the seed is attached, and their formation is continued by the successive deposits on the skin covering of the seed inside the cell of the capsules. That is, the fibre proper is formed inside the outer cell or series of cells, the walls of which afterward are absorbed and disappear, leaving a long extended cell, known as cotton fibre, behind.

During the life and growth of the plant the fibre is a perfect hollow cylinder, thin and transparent, within whose walls the vital fluids of the fibre, composed of a cream colored oelaginous matter, are in active circulation. As the circulation goes on inside the surface walls they become crusted with viscous matter, and thus increase in density, thickness and toughness.

As the plant approaches maturity the circulating fluids are gradually withdrawn from the fibre into the reservoir or central cavity of the seed. By this suctorial action a vacuum is caused beginning at the apex and following the retreating fluid to the base; so that under atmospheric pressure the outer walls collapse and cause the fibre to assume the form of a flattened hollow ribbon.

The twist begins with the process of vacuation in the fibre and, as the latter collapses, the twisting is aided by the crowding of the mass within the capsules. It begins at the extremity farthest from the seed and gradually recedes toward the base; the end or point of the fibre beginning and twisting on its own axis several times and thus producing the flattened convolution form shown under a microscope.

As the vital fluids of the fibre are absorbed by the seed and a vacuum formed, the walls attain a considerable thickness, and are bent and twisted upon themselves, thus producing the characteristic corded or corrugated appearance.

"BUMBLE-BEE COTTON."

Your explanation of the origin of the phrase "bumble-bee cotton" is erroneous. Your statement that "bumble-bee cotton" is grown in the northern portion of the "belt" and is picked by "pickaninnies" is in no way connected with the phrase. "Bumble-bee cotton" was so called on account of the height of the stalk. Height of stalk and not location or pickaninnies, is the characteristic of the cotton. It grows on poor sand-ridges all over the cotton belt. Bumble-bees are very fond of cotton blossoms. From morn till night, as long as cotton blossoms last, the bumble-bee works continually gathering food from them. On poor sand-ridges the stalks grow from three to eight inches high, having one or two blooms near the top. The small stalk is so frail that when Mr. Bumble-bee comes to gather his food, it bends under his weight, necessarily compelling him to stand on his hind feet on the ground. Constant contact with the ground in the early morning hours caused Mr. Bumble-bee's clothes to look soiled; hence the phrase "A bumble-bee would wear out his ——, or clothes on the lower limbs, trying to suck such low cotton blossoms. Yours truly, T. NEAL KITCHENS.

If desired, we may in the following manner gain an idea of the length of yarn which might be made from the world's annual cotton crop, estimated at three billion pounds; allowing twenty per cent. as loss from cleaning, carding, etc., there would remain a balance of two billions, four hundred million pounds available for the composition of yarn; each pound of this quantity is capable of producing nineteen miles of yarn; so that the entire quantity would be sufficient to make nearly forty-six billion miles of thread.

A Study In Cotton.

In every lot of cotton three classes of fiber may be found: 1, unripe; 2, half ripe, and 3, ripe. Unripe cotton, when examined with the aid of a microscope, appears extremely thin and transparent, and usually with little or no twist, and it is of little or no use for manufacture. The half-ripe fiber has the same characteristics, but to a lesser degree, and is more valuable than the former, but it is only the ripe cotton fiber that possesses all the rqcuisites for perfect cotton. Unripe fibers containing little or no cellular opening do not form capillary tubes, and cannot be made to act as absorbents. Cotton containing any great proportion of half-ripe fiber is unfit for use in making absorbent cotton or to be spun into gauze or lint cloth.

Xylon.

COTTON PLANT.

Drawing from L. Fuchsius' De Historia Stirpium Commentarii Insignes, Lugduni, 1551, probably the earliest deliniation of this plant.

THE COTTON PLANT.

Branch with buds and blossoms. Cotton boll. Seed with attached fiber.

COTTON AS A FILTERING MEDIUM.

David R. Dorn, Ph.G., in a recent paper, warmly recommends the use of cotton as a filtering medium in pharmaceutical operations. He says:

"I have used cotton as a filtering medium largely. I have found it in many directions greatly superior to paper. Its chief value, perhaps, is its rapidity of action. The many preparations which contain volatile constituents, like the medicated waters and the spirits of the pharmacopeia, for instance, must needs in filtering be exposed to air as short a time as possible. After a little careful practice a cotton filter may be so skilfully made that a water or spirit will run through it in a considerable stream, and come forth as clear as though paper were used. Then, too, there are many preparations, other than those having volatile constituents, that are harmed by undue exposure to air and light. Some of the ferrous preparations, for instance, take unto themselves the oxygen of the air and are converted into ferric compounds, with a change of color. All such preparations are legitimate subjects for cotton filtration.

"Another decided advantage which cotton has over paper is its greater purity. Many of the filter papers of the market contain such impurities as iron, lead, and coloring matter. These impurities very often act on the liquids undergoing filtration. The iron in some papers will almost always turn salicylate of sodium solutions black. It will often act also on the tannin present in many vegetable preparations, as some of the tinctures, for instance, forming a small amount of tannate of iron, which is densely black, and therefore a strong coloring agent when in sufficient quantity. The coloring matter present in some papers, too, often causes a discoloration of filtrates containing free alkali.

"Cotton is not to be recommended for preparations containing large amounts of suspended or sedimentary solid matter, for the latter will soon fill the interstices of the filter and prevent the liquid from running through. This applies, generally, to fluid extracts which have become thick through age or premature gelatinization. In such cases, paper held away from the sides of the funnel by a "rack," if such it is called, is superior. Straining may often be resorted to first. Or if the solid matter has settled pretty well in the bottom of the bottle, decantation is effective.

"The making of an absorbent-cotton filter, while not a particularly difficult procedure, is yet one which requires some careful study and practice. No definite rule can be laid down. Preparations of different viscosity and of different degrees of cloudiness will require, naturally, larger or smaller filters, compressed more or less heavily. Experimentation with differing preparations will alone teach what is required in each particular case. It may be said in general, however, that the cotton is to be rolled into a cone-shaped pad, as you saw my helpful preceptor do, and pressed down pretty well into the throat of the funnel. To prevent the cotton from loosening or rising, the liquid should be gently poured down a glass rod pressed into the filter.

"Finally, I would say that cotton filtration is an essential requisite of prescription work. Almost every prescription, unless it purposely contains some insoluble substance, should be filtered before handed over to the patient. Cotton is the ideal filter for that purpose. It is quick, effective, and easily worked."

It is needless to add that when used for filtering purposes absorbent cotton should be absolutely pure—that is, should be free from foreign matter and have no trace of chemicals remaining from the process of rendering absorbent and bleaching.

Tests given elsewhere in this number show that many kinds of absorbent cotton contain chemicals and other substances that would greatly militate against the use of such kinds of cotton for filtering solutions containing delicate chemicals.

STERILE GAUZE MAKES STERILE MILK.

PLAINSBORO, N. J., July 20, 1899.

Please send me at your earliest convenience 100 yards No. 2 Red Cross Gauze, plain. We are using this gauze in our milk strainer, as our business requires a sterile cloth, and find it very satisfactory.

Very truly yours,

C. O. UPTON,
Supt. Farm.

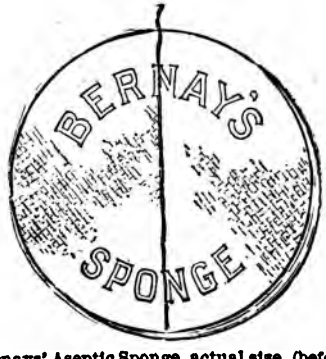
Walker Gordon Lab'y Co.

New Era Cotton.

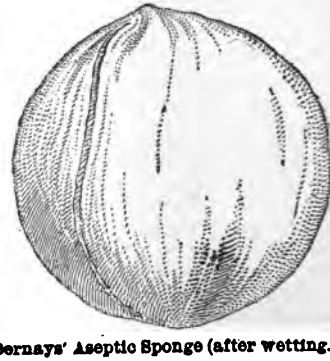
Absorbent Cotton in layers with tissue between layers. Originated by Johnson & Johnson.

Absorbent Cotton, packed in Blue Carton, with a Red Cross label. Each package sterilized and sealed.

Linton Moist Gauze in glass containers hermetically sealed.



Bernays' Aseptic Sponge, actual size, (before wetting), useful as sponge, pad or compress.



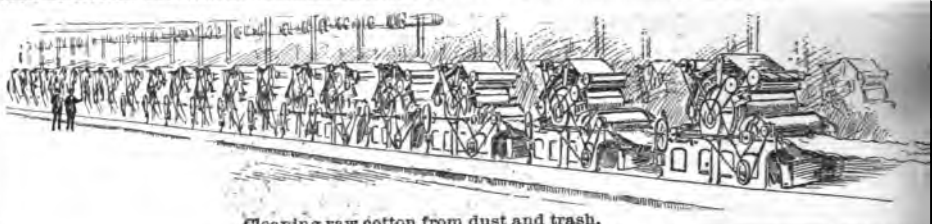
Bernays' Aseptic Sponge (after wetting.)

New Era Cotton.

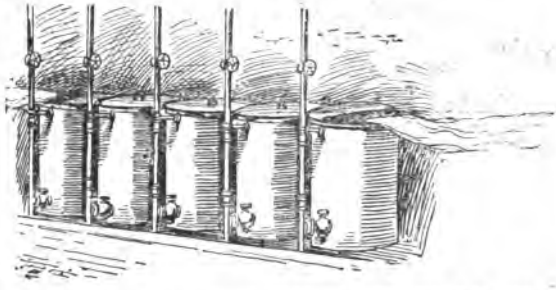
Each bandage sterilized, wrapped and sealed. Packed one dozen bandages in a box.

Red Cross Gauze in 25 and 100 yard rolls. **Packed in patent containers; a portion can be used without contaminating the remainder.**

Red Cross Aseptic Towel, for emergency use.



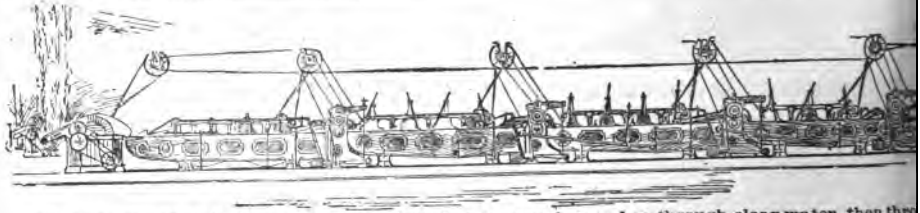
Cleaning raw cotton from dust and trash.



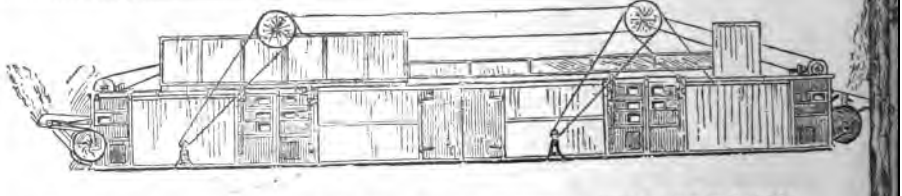
Rendering cotton absorbent by extracting oils, fats, wax and varnish.

The Nec

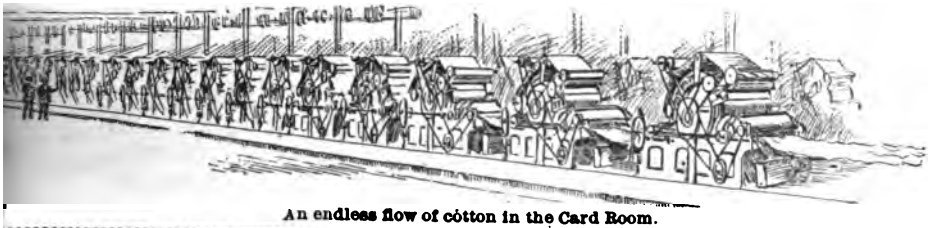
Before cotton is through a series of on this page show se



"The Endless Wash." After extraction, the cotton is passed on and on through clear water, then thro chemical baths, alkali baths, acid baths, washed in clean water between each bath.



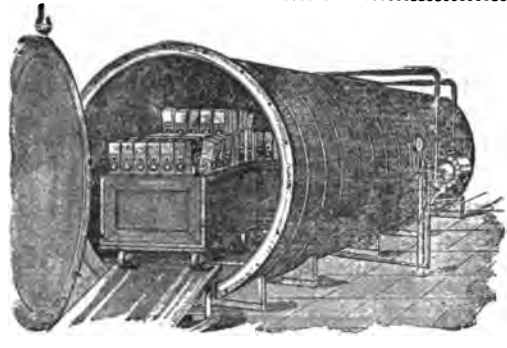
Through the dryer from the cleansing bath the cotton passes automatically to hot air chambers, where strong blasts of very hot dry air dry and sterile it, whence it is carried on to the carding apparatus.



An endless flow of cotton in the Card Room.

sary Forty.

use in surgery it passes operations. The sketches the manipulations in Johnson & Johnson's Laboratories. The processes are continuous, the fiber being carried automatically step by step through the automatic apparatus.



Vacuum Sterilizers, five in operation.

Packing cotton in cartons for sterilization.

A STUDY IN BELLADONNA.

At the Chemists' exhibition held in London during the present year, the Johnson & Johnson laboratories made a showing that was much out of the usual order for such events. Their exhibition was labeled in large letters "A Study in Belladonna."

The title was an apt one, for the exhibit probably constituted the greatest study of the belladonna plant ever presented for inspection at one time.

There were shown the living belladonna plant in bud, in flower and in fruit; there were photographs of belladonna in its native habitat; there were photographic sections showing its life history; specimens of the root and leaf from various sources; there were also trays filled with specimens of allied drugs, and those used as admixtures or substitutes, and false belladonnas, with herbarium specimens of the same. The use of belladonna in plasters, and the making of a belladonna plaster in accordance with the British Pharmacopeia, were shown on a very large scale, including a mass of one hundred pounds of belladonna plaster as made by Johnson & Johnson, with the actual ingredients prescribed by the British Pharmacopeia exhibited in proper proportions.

Beginning with a large pile of belladonna root, the student saw the liquid extract that would result from the extraction; then the liquid extract evaporated to a solid extract; and the due proportion of atropine and other alkaloids.

Next followed in proper quantities the India rubber, the purified gums—galbanum and olibanum, the resin, beeswax, olive oil, burgundy pitch, and the boracic acid; all bearing labels descriptive of their source and variety.

These separate ingredients finally mixed with the belladonna extract were shown in a finished mass of one hundred pounds of belladonna plasters; and finally came the plasters spread from the mass. The exhibit was illustrated by photographs of the apparatus and processes used in plaster making.

In the London CHEMIST AND DRUGGIST appeared the following notice of the Johnson & Johnson exhibit:

John Timpson & Co. (Limited), 104 Golden Lane, E. C., as agents for Messrs. Johnson & Johnson, the plaster manufacturers, devoted their exhibit solely to the materials employed in the manufacture of belladonna plasters. It was scientific in character, the object being to show that the firm take particular care to make their plasters of belladonna only, and are prepared to prove the fact.

Mr. Kilmer, a well-known American pharmacist, had come over here especially to demonstrate a method of assaying the plasters. On one side of the stand were the ingredients used in making 100 lb. of belladonna plaster mass. Here were a big heap of belladonna root, and with the percolate from a similar pile, and the solid extract obtained from the percolate; also in their due proportions, Para rubber, olibanum, galbanum, beeswax, Burgundy pitch, and olive oil, which, with the solid extract, go to make the mass. A hundred pounds of the mass in big chunks were also shown. On another side of the exhibit were samples of atropaceous drugs other than belladonna, althaea root, and similar adulterants of belladonna root, as well as herbarium specimens of the plants yielding these drugs. There were also in the other sections of the stand photographs of the firm's factory in New Brunswick, N. J., and samples of finished plasters. Demonstrations designed to show whether belladonna plaster is made of belladonna or scopola rhizome were also given.

THOSE CANADIAN ANALYSTS.

The lot of the public analyst in Canada is not a happy one. More than once in these columns we have called attention to their reports and pointed out the many gross errors made by them. In the pursuance of this course we have from time to time been subjected to criticism and accused of prejudice. That we are justified in our censure of these analysts' work is plainly evident from a perusal of the Canadian journals of pharmacy and medicine. In a recent issue *The Montreal Pharmaceutical Journal* is very severe in its strictures upon the annual Blue Book issued by the Inland Revenue Department, which contains among other matters a report from these same analysts upon food and drugs.

The *Journal* says: "This issue contains many absurdities, such as have characterized many previous volumes"; calls attention to the "deplorable lack of supervision" and "amusing inconsistencies," "startling averages" and "incomprehensible results."

The *Journal* concludes that: "It is lamentable that a costly official document should be issued to the public without the revision and correction of manifest errors."

The *Revue Generale* of Montreal is still more critical. From a long discussion of the subject in that journal, we extract the following:

"BELLADONNA PLASTERS AND THE CHEMISTS OF THE CANADIAN GOVERNMENT.

"The official Bulletin No. 58, issued from the Canadian Inland Revenue Department, exhibiting the results of the analysis of belladonna plasters, shows in a not very creditable manner that the experts in the different provinces of the Dominion are far from familiar with this kind of test. While we admit that processes for testing belladonna plasters require careful attention it is not so very complex but that approximately accurate results may be obtained.

"Consulting this bulletin, however, one is obliged to decide that the experts are incompetent, as is shown by the examination of the same sample from one manufacturer where the different reporters gave results varying many hundred per cent."

In a careful examination the author found that belladonna plasters for which the analysts gave a high mark did not contain any atropia whatever; and the author shows the absurdity of judging the quantity of alkaloids from the precipitate given by the reagent. The author gives a process used by him for distinguishing the alkaloid of belladonna from its substitutes, and says: "One could put on the market quinine plasters and label them belladonna, and the Canadian analysts would report them as standard because the results would show a heavy precipitate with a Mayers' reagent." The author shows further absurdities in the report of the Bulletin, and says: "That the reports of the analysts of the Canadian Government are erroneous and that a chemist who has only a limited practice in the manipulation of officinal tests should be very careful before making public the results of his researches and analysis." It is the duty of the Canadian Government to prevent the publication of such reports without first having been corroborated by competent authoritics. It is sad that the very well-known incompetency of our Government chemists should be so publicly held up to view; it is sadder yet to have such mistakes published officially, seemingly without any attempt to confirm or to eliminate the manifest erroneous results.

The writer concludes: "If it was in the public interest that this investigation was undertaken, in all loyalty we must excuse them with the admonition that 'we forgive them for they knew not what they did.' We are, however, sorry to see our Government enter into combination for the advertising of a certain brand of plasters which by its own researches should have been found unworthy of commendation—and this to the detriment of brands known to be good and reliable. We do not care to investigate too closely the reasons which have tempted our official chemists to engage in a work which has brought such a reflection upon our Government. If we accept from them the excuse of 'public interest' we are forced to admit that the public interest has been poorly served."

Such criticism, though severe, must result in good for the department. So far the course of Red Cross Notes toward the Government has been with the view of the general good. We advocate

government supervision, and the holding of makers and vendors strictly accountable for the quality of food and drugs. But we hold that the analyses should be fair, that the analysts should be of the highest order and unbiased.

We know that our discussion of the subject has been of great benefit. All, including our analyst friends, have had many valuable lessons on belladonna and belladonna plasters. One thing has been established: — That Johnson & Johnson, in making their belladonna plasters, are loyal to the pharmacopeia. Whatever may be said of others, Johnson's Belladonna Plasters are made of true belladonna, contain all the alkaloids of belladonna required by the pharmacopeia. They are belladonna plasters, nothing else, and will give the therapeutic effects of belladonna.

THE BELLADONNA PLASTER ANALYSES.

The government has issued another bulletin on the quality of belladonna plasters sold in Canada and we do not think that the position of the analysts has been improved much by it. Messrs. Johnson & Johnson have the satisfaction of having their position and claims substantiated. They claimed that their plaster was in accordance with the strength laid down in the U.S.P. The first set of analyses indicated that their plaster varied in alkaloid strength from 0 to .234 per cent., but the last set show the average to be .222 which is a close approximation to that laid down by Prof. Caspari, as being the alkaloidal strength of U. S. P. belladonna plaster. We notice that the reportsays "the average showing of Bulletin 58 (omitting the Montreal figures) is not essentially different from that exhibited in this report." Why were the Montreal figures omitted? If they had been included the "average showing" would have been somewhat different. We do not think that entire justice has been done in omitting the figures obtained by the Montreal analyst.

An attempt was made to differentiate between plasters made with belladonna and with scopola, but without success. This question is important because there is on the market a brand of so-called "belladonna" plasters which contain no belladonna whatever, but are made from the rhizome of scopola carniolica. The question of the constituents of this drug is still under discussion, and we doubt that anyone is prepared to state that belladonna and scopola are absolutely identical and that one can honestly be substituted for the other, and until this question is definitely decided by unimpeachable scientific authority, we consider that the adulteration act should be enforced against the makers and sellers of these plasters, because these goods are not belladonna plasters, and therefore are not of the character etc., of the substance demanded. That this particular brand of plasters comes out highest according to the government report is of secondary importance, alkaloids are present, but what are these alkaloids? Are they identical with those of belladonna root, and do they exist in scopola in exactly the same proportion as belladonna? Until these questions are answered affirmatively we do not understand how these plasters can honestly be called Belladonna Plasters.—Canadian Pharmaceutical Journal, Nov., 1899.

"TRY IT ON THE DOGS."

Your plaster has been used by me for over twelve years with the best possible results. My advice to you is, keep to your old reliable standard. I do not think that legislative or ignorant political chemists should be taken as authorities on what they know nothing about. If I could I should apply the different samples of belladonna plasters to the body of the chemist. That would be the best scientific test and one that he could appreciate and be sure of, at least.

DR. MASSOM, Chicago, Ill.

Washington, D. C., Oct. 5, 1899.

Messrs. Johnson & Johnson,

Gentlemen—"Red Cross Notes" comes occasionally; am pleased with its contents and especially notes on Belladonna plasters, which I prescribe universally now.

I presume your Belladonna plasters are given when prescribed, but to make sure of it, I wish one from your laboratory to compare. Send me any literature you may print on your valuable preparations.

Very truly yours,

L. S. NICHOLSON, M. D.

A NEW ADHESIVE PLASTER.

One of the recent outputs from the Johnson & Johnson laboratories is a surgeons' adhesive plaster differing quite essentially from any adhesive plaster now known. It has all the adhesiveness and strength of the ordinary adhesive plaster (adhering at body temperature), at the same time it possesses the healing and soothing properties of the famous Diachylon Plaster.

This new plaster is known as Z. O. Adhesive Plaster, and is made of adhesive gums (burgundy pitch, galbanum, etc.), from which gums, however, the irritating resins and oils have been removed. These gums after preparation are combined with a specially prepared rubber, and with the mass is incorporated zinc oxide; it is at once a surgeons' adhesive plaster, (being instantly adhesive without the aid of heat or moisture); and it will stay exactly where placed without slipping or sliding. It is not affected by heat, cold or moisture; it is durable and unchanging. It is perfectly flexible, conforming to any part of the body. The mass is firm, tough and adhesive; it is spread thin; at the same time it is perfectly non-irritating—indeed, it is emollient and healing.

This new adhesive plaster not only possesses all of the good qualities (without the disadvantages) of the best rubber adhesive plaster; but in addition it will be found useful in skin diseases or painful ulcers, where its mild action, slightly desiccative, sedative, cooling and soothing properties will be found useful.

It is probably the only rubber adhesive plaster that can be used by those having delicate skins. It is no exaggeration to state that the Z. O. Adhesive Plaster is a great improvement in, and an admirable example of the plaster making art.

A sample of the Z. O. Adhesive Plaster will be sent upon application.

COTTON NOTES.

Associated with cotton fibre is a certain proportion of water in chemical union or "water of hydration" ranging from 2 to 7 per cent.

The first step in the preparation of absorbent cotton is the extraction of the pectose and resinous matters associated with the cellulose within the tabules: It is then bleached.

The processes of the manufacture are in brief, as follows: First—boiling in a solution of caustic alkali: second—bleaching with chloride of lime: third—steeping in hydrochloric acid.

In practice the cotton is subjected to these operations many times over. It is washed between the operations; it is finally dried and carded.

The best of the raw cotton of the market, as it leaves the planter's "gin," is still loaded with dirt, seeds, leaves and unripe fibres, and requires several cleanings before it can be submitted to the scouring process.

During the process of making cotton absorbent, the boiling alkali saponifies the oil of the cotton; margaric and oleic acids are formed and remain in the cellulose structure. If these are not removed they will form in the bleaching bath, insoluble lime soaps which will adhere to the fibre. Stains of vegetable matters; iron stains sometimes due to previous accidents, sometimes apparently inherent: Stains derived from seeds, leaves, all of these are liable to become set and cause great loss. In particular the stains produced by the gnawing of the boll-worm are extremely tenacious.

Some microscopic changes in the cotton may be noted during the process to which it is subjected in the alkali baths; the cell-wall of the tube thickens, and the aperture becomes smaller. On drying it collapses. In the bleaching baths a partial removal of the skin layer takes place.

In the acid baths the walls of the tubes are thickened and rendered transparent; and the fibre on drying becomes brittle, especially when too long immersed or when the bath is kept too warm.

In preparing cotton for surgical uses, if one man did all the work, he would handle the same cotton more than forty times; and the bale of cotton from the day of entering the laboratory requires ten days to make it ready for the surgeon. The loss of weight in passing from the raw condition to that of finished absorbent cotton is not far from 40 per cent.

The impregnation of cotton fibre with antiseptics was first practised by Sir Joseph Lister; but by his process the non-absorbent fibres were made repellent to wound discharges, and the fatty vehicle kept the antiseptics from contact with such discharges: Hence, in the modern view they would be unscientific dressings.

It has been supposed that cotton fibre through which an antiseptic drug was distributed, would be impregnable to germs. Some have claimed that germs would be destroyed by the vapor of the drug between the fibres so treated; but experience has proven this erroneous.

RED CROSS NOTES ENLIGHTENING THE WORLD.

HARVARD MEDICAL SCHOOL, BOSTON, MASS.

Gentlemen—Have been very much edified by the thesis on cotton in your Red Cross Notes and should be pleased to receive the subsequent issues. I am,

Yours very truly,
WAYLAND ROSS.

Gentlemen—Red Cross Notes are always welcome and read with much interest, as they contain much valuable information, but I do not receive them regularly. May I therefore ask you for the favor to put my name on your list, so that I will receive them regularly.

Respectfully yours,
L. C. KOEHER, M.D., Chicago, Ill.

BROOKLYN, N. Y., Aug. 21, 1899.

Gentlemen—I have just received through the mails a copy of Red Cross Notes. Permit me to compliment you on its get-up. I have not seen its equal since I stopped subscribing to *Printer's Ink*, by the Rowell Co. Whoever does your advertising is a good one. The articles on "Iodoform Johnson" and "Landmarks," etc., are intensely interesting, and if you really and truly have an odorless iodoform, the medical and surgical professions will rise up *en masse* and call you blessed.

Yours truly,
ALBERT E. MARSLAND.

BROOKLYN, N. Y., Aug. 25, 1899.

Gentlemen—Having always been an ardent admirer of your antiseptic dressings, and always handling them in preference to all other manufacturers, as they give best satisfaction, I beg leave to request you to place me on your mailing list for your Red Cross Notes, as I find them very interesting and instructive. Hoping you will comply with my request, I remain, Very truly yours,

HENRY C. GUOS,
Manager Bay Ridge Pharmacy, 74th St. and Third Ave.

St. Joseph, Mo., Oct. 12, 1899.

I desire to beg your pardon for not sooner acknowledging the receipt of the eight numbers of your valuable publication, and to convey to you my sincere thanks for the same. From my experience in the field during three wars and a trip across the continent with the Third Mounted Rifles, I am greatly pleased with your remedies, methods of treatment and recommendations. They are a great improvement upon what was used during the Mexican, and even in the War of the Rebellion of 1861.

Very respectfully,
P. V. WISE.

A PLEASURE IN JAPAN.

DEPARTMENT OF EDUCATION,
TOKYO, JAPAN.

I have received the copies of Red Cross Notes which you were so good as to send me regularly. I feel a great pleasure in reading these interesting notes and beg to express my best thanks for them. I hope you will continue to send them to the undersigned.

Yours truly,
DR. M. M. SHIMA,
Medical Counsellor.

Eddington, Pa., Nov. 17, 1899.

Messrs. Johnson & Johnson,

Gentlemen—I have been reading with much interest "Red Cross Notes", the first of which has come under my notice this week. I shall be pleased to receive the publication regularly. If not asking too much, I shall also be pleased to receive a copy of A Study in Dyspepsia and Rules & Suggestions, together with a sample of Odorless Iodoform and Lintine, as I am a thorough advocate of Iodoform, using large quantities in my private Hospital and two large institutions.

I may say, I am a frequent user of your Cotton and Belladonna plasters.

Respectfully,
G. H. STROUP, M. D.

Red Cross Notes is the title of a periodical issued by Johnson & Johnson, of New Brunswick, N. J. Its pages contain much information which should be of interest to the medical profession and the drug trade.—*Advertising Experience*, Chicago.

Johnson & Johnson, New Brunswick, N. J., in Red Cross Notes, No. 8, 1899, have devoted practically the entire space in that number to a study of cotton fiber as known to surgery. It is a highly interesting contribution to the subject and will be greatly appreciated by the drug trade. Copies of the issue can be had on request.—*Western Druggist*, August, 1899.

MILWAUKEE, WIS., Sept. 5, 1899.

Gentlemen—It may interest you to know that I am still prescribing your digestive tablets every day, for the reason that I do not know of anything better or even as good. And then I have dispensed your belladonna plasters for many years and am better pleased with them now than ever. I believe few surgeons in active practice in Milwaukee ever think of using anything but your absorbent cotton. In conclusion allow me to thank you for Red Cross Notes, and to assure you that most of us read every line every month.

Very truly yours,
T. W. WILLIAMS, M.D.

Gentlemen—I have been much interested in the few numbers of your Red Cross Notes which have reached me so far, and find them not only full of valuable matter but decidedly worth preserving and an acceptable addition to my library. Would it be possible for me to procure from you a complete set from the beginning. If so I should like to bind them. Please put my name on your regular mailing list for all future monographs, booklets, etc., which you may issue, and if you can send me any back numbers of such matter they would be appreciated. Also kindly send me a price list of your various products. Hoping Red Cross Notes will prosper, grow and prove profitable, I remain,

Yours very truly,
H. A. RADEMACHER,
Consulting Chemist Embalmers' Supply Co.
Westport, Conn.

Nashville, Tenn., Sept. 23, 1899.

Gentlemen—

We think very highly of your goods and propose to use your ligatures in the future.

Yours very truly,
Duncan & Paul F. Eve.
700 Church St., Cor Vine.

WANTED FOR REFERENCE.

ST. JOSEPH, Mo.

Could you furnish me from No. 1 of Series No. 2 to the present date? If aye, at what price? If you cannot supply from No. 1, then please state to me the cost of Nos. 7 and 8, Series No. 2. On receipt of your answer I will remit amount to you. I am much pleased with the publication.

Respectfully,
P. V. WISE, M.D.

The editions of Red Cross Notes are limited, and the supply is ordinarily quickly exhausted to supply the demands of those to whom it is sent regularly. Special issues, such as No. 8, upon the subject of Cotton, are quickly depleted. However, a small supply of each issue of Red Cross Notes is reserved for use of the publishers. They are not for sale, but libraries or institutions which desire to complete sets for binding may obtain such as may be on hand.

The best way to secure Red Cross Notes is to have your name registered with the publishers, in which case the issues will be sent regularly.

HEADQUARTERS FOR INFORMATION.

Chatham, N. B., Oct. 6, 1899.

Sirs—I am about to deliver a lecture on "Cotton" before the Miramichi Natural History Association, and wish to get as far as possible, samples of the different lines of manufactured cotton goods. In the medical and surgical line I am quite well aware that I can apply to no better concern than your own as I have used your goods for years.

I would like to get the smallest sample you put up of all the different forms of cotton of your make, such as you give in "Red Cross Notes;" sponges, napkins, aseptic towels, etc.

Can you take the trouble to put me up such a parcel and send C. O. D.? If so, please do so, but you will understand that under the circumstances, I only want the smallest possible sample, which I will deposit in our Museum.

Yours truly,
J. BAXTER, M. D.

Cambridgeport, Mass., Oct. 24, 1899.

Dear Sirs—As I have been unable to purchase below goods here in Boston, I must write to you for them.

2 boxes Mercuride Leaves, 2 doz. in box.

I find them very handy. I have received one or two copies of your "Notes", but lately I think my name must have escaped your secretary's eye. Hoping to receive them or any literature you may send out, as I am convinced it is interesting or you would not burden the Profession with it. If possible, send boxes quickly, as I am almost out of Leaves.

Yours truly,
JOHN L. FLYNN, M. D.

THE UNIVERSITY OF IDAHO,
DEPARTMENT OF CHEMISTRY,
Moscow.

Gentlemen—Red Cross Notes, Series No. 5, has found its way to my desk, and there is so much of interest to the chemist in it that I am impelled to request the regular receipt of your publications by the department as often as they may become available, together with such back series and numbers as may not be exhausted. Thanking you if you will place my name on your list.

Very truly,
C. W. MCCURDY.

I would be very much pleased to have a copy of "A Study in Dyspepsia" and "Rules and Suggestions." Red Cross Notes is a welcome visitor. Thanking you in advance, I remain,

Yours truly,
JOHN KAYE, M.D., Phila., Pa.

Gentlemen—Please send me a copy of "Rules and Suggestions" and also a copy of "A Study in Dyspepsia." I was fifteen years in the drug business in Philadelphia before I commenced practicing medicine and always found your goods first-class. I appreciate your Red Cross Notes very much.

Your obedient servant,
SAMUEL SHERBURNE, M.D.,
653 N. 15th St., Phila.

Gentlemen—Will you kindly include my name on your mailing list to receive the future Red Cross Notes? Am very much interested in contents and take a special delight in reading same. Hoping to be favorably favored, I am,

Yours truly,
W. H. BETZ, Ph.G.,
1541 Fontaine St., Phila., Pa.

Honolulu, Hawaiian Islands, Sept. 6, 1899.

Messrs. Johnson & Johnson,

My Dear Sirs—I am on my way to Manilla on the U. S. Transport "City of Puebla" for an assignment to duty. I visited this morning a Japanese hospital in this island. The hospital is devoted to charity and supported by donation. I am truly surprised at the great work they are doing. I examined the results of some magnificent operations. I also found your preparations in use here: Absorbent Cotton, plain, sublimated and Iodoform Gauze, etc. Were I going to the States instead of to the Philippines I would make a great effort to do them a service, I am so pleased with the work I see here.

I compliment you on the fact that I find your goods in all parts of the world. I remain,

Yours very truly,
DR. M. S. SIMPSON.
U. S. Army.

SIXTY SUCCESSFUL OPERATIONS.

Dear Sirs—It gives me great pleasure to say that I have used your aseptic iodoform gauze in a series of over sixty operations, and that absence of suppuration and union by first intention have resulted in all cases not previously septic. Allow me to congratulate you on the result of your labors.

U. GORDEN MUWRY,
Surgeon in Charge The General Hospital,
Yokohama, Japan.

ST. LOUIS, August 28, 1899.

Gentlemen—Am using your J. & J. Ligatures with the greatest satisfaction. Do you prepare chromicized catgut in the sterile envelope style?

Very truly,
WILLIS YOUNG, Surgeon.

CHEAPER PAPOID.

WEST CLARKFIELD, Ohio.
Sept. 1, 1899.

I am a friend of "Papoid," but recent "hard times" have made it too expensive for my practice, as I furnish or carry drugs and am twelve miles from any drug store. The dispensing of a drug as expensive as Papoid depends very much upon the financial condition of your clientage. If I could purchase it as cheaply as the retail druggist I might use considerable quantities of the preparation. I have this commendation for it —that in almost every instance I have observed within a short time increase of appetite, improved nutrition, healthier color of the face and increase of weight.

You may send me such samples of Papoid as you deem best, and the quantity—I would much prefer to purchase it cheaply enough that I might use greater quantities of the preparation. Thanking you for your past kindness, I remain,

Yours respectfully,
DR. WILLIAM DAVIS.

Our correspondent is evidently not aware of the fact that the price of Papoid has recently been reduced, and that it is now sold at a price that makes it cheaper than pepsin, dose for dose. The dose of pepsin is from five to ten times that of Papoid; Papoid at its present price—$2.20 per ounce—is as cheap dose for dose as pepsin would be at twenty-five cents per ounce; in fact, will give more curative value for the money than any other digestive agent. Papoid is a more expensive drug to produce than any other digestive agent, and it has been difficult to secure a reduction in the price and at the same time retain the high standard of efficiency for which Papoid and its preparations are noted; however, by reason of improved facilities for production, and by the consequent increased consumption, a reduction has been made to a rate within the reach of every class of patients.

The reduced prices are as follows:

Papoid Powder, old price, $3.50 per ounce; new price, $2.20 per ounce. This is a reduction of $1.30 per ounce.

EXPANSION.

The latest territorial acquisition by Johnson & Johnson is the purchase of the park and grounds of Senator Adrain in Highland Park, New Brunswick, N. J.

This new addition consists of 150 acres of land, and is located on the bank of the Raritan River directly across the stream from their present laboratories.

"Red Cross Park" or "Johnsonia," as the accession has been named, lies on an elevation overlooking New Brunswick and the river. Through the grounds there runs a beautiful stream of water, along the banks of which will be located their new buildings. At the present time nine of the buildings of Johnson & Johnson are located in Highland Park; these will be re-erected in the new territory.

Here will also be built other buildings to meet increasing needs. The water acquired in the new location is one of the most important items. Pure water in unlimited quantities is imperative in the production of surgically clean dressings and chemically pure absorbent cotton, and many other operations connected with their products. The water supply of this property is derived from springs and is of exceptional purity, containing but a trace of organic matter, and less than one grain of mineral matter per gallon. Sterilization and filtration will furnish an absolutely pure water at the rate of a million gallons per day.

It is in contemplation to erect here new pharmaceutical laboratories for the extraction of drugs, laboratories for rendering cotton absorbent, for bleaching and cleaning surgical dressings, chemical laboratories for the preparation of antiseptic chemicals, solutions, etc.

This new purchase affords the most ample facilities for the peculiar work of Johnson & Johnson, far away from the dust and dirt of the city, with pure air, pure water, and more than all, room for growth.

DEATH OF THE SKUNK.

OMAHA, NEB., Sept. 11, 1899.

Gentlemen—We are in receipt of your circular letter announcing the death of the "Skunk of Surgery." Allow us to state that we receive this news with great joy, and while like the death of Weyler and various other notorious personages who have figured in ancient and modern history, this funeral notice has been published and republished with great regularity, yet we trust this is a coroner's certificate and that iodoform may stay dead for all time to come. Yours very truly,

SHERMAN & MCCONNELL DRUG CO.
Sherman.

St Louis, Mo., Nov. 13, 1899.

Messrs. Johnson & Johnson,

Gentlemen—Tested sample of Iodoform (Johnson) and found it acted splendidly as a substitute for the old form of Iodoform. I use and prescribe only your goods, as I have always found them perfectly satisfactory in every way, whereas some of the gauzes, absorbent cotton, belladonna plasters, etc., of other manufacturers cannot compare with yours. Your Canthos is remarkably prompt and efficient. Of late have had less trouble in getting your goods.

Respectfully yours,
EUGENE F. HAUCK, M. D.

Terre Haute, Ind., Nov. 14, 1899.

Johnson & Johnson,

Gentlemen—I have used the sample of Odorless Iodoform in my specialty (skin diseases), with satisfactory results. It is a great relief to be able to use it in those cases when iodoform is demanded, but the patients rebel against it because of its penetrating and persistent odor which they will not tolerate. You ought to receive the unanimous thanks of the medical profession.

Respectfully,
W. R. ELDER.

Camden, N. J., Nov. 11, 1899.

Johnson & Johnson:

Gentlemen—In reply to yours of the 7th will say that I have used about a half-pound of your Iodoform, Inodorous Johnson. I prescribed it chiefly in 10 gr. Vaginal suppositories, and about 2 ounces made into ointments.

I have some very good results with the regular Iodoform, but detest its odor, and I had been casting about for a good substitute to take its place when I wrote to you for a sample and have been using yours ever since. I have been watching closely the results and so far they seem to be about the same. I must confess that I am stuck on the "Old Iodoform" because it has served me well many a time.

I am still watching the effects of your Iodoform, and am going to try it with the worst cases that come my way, and will inform you later of the results of my observation. I have noticed that it gets lumpy and moist on standing.

Very truly yours,
G. W. HENRY, M. D.

De Land, Fla., Nov. 17, 1899.

Johnson & Johnson:

I have used the sample of Iodoform Johnson, which you so kindly sent me, with, so far as I could observe, the same results as when using the original Iodoform, and I have requested my druggist to obtain a supply.

Yours truly,
A. S. MUNSON, M. D.

Norfolk, Neb., Nov. 16, 1899.

Johnson & Johnson:

Will say in regard to the Odorless Iodoform, it has proved perfectly satisfactory in the cases in which I have used it, and my druggist here now has it in stock. The beauty of it is, you cannot smell your patient a mile off, and the most delicate nostrils cannot complain.

Yours very truly,
H. T. HOLDEN, M. D.

Your notes on Iodoform Johnson have been perused with a great deal of interest; you no doubt have one of the best preparations of the age.

CHARLES S. ERB,
Manufacturing Chemist,
121 Amsterdam Ave., New York.

BEWARE OF FRAUDULENT "PHYSICIANS' SUPPLY" HOUSES.

Many contemporaries have editorially opened a crusade against substitution. There is no excuse for any pharmacist or supply house furnishing goods (no matter whether they are drugs, instruments, surgical appliances. or dressings) of a different make than the one desired. This is not only fraud of the deepest dye, for personal gain, but sometimes in the case of dressings, indirectly murder, absolute and undeniable.

Let us take an example. Some years ago, while rather green in the United States, the writer entered a drug store and asked for two ounces of Squibb's chloroform (for anæsthesia), and used it a few minutes later on a patient. In vain were three-quarters of the vial poured on the inhaler, the patient could not be "brought under." The assistant and ourselves becoming suspicious, we sent for an original package, having meanwhile postponed the operation four hours, and behold, a few drachms produced anæsthesia. Under the fire of cross-examination the druggist admitted to have given us a chloroform which he thought "just as good as Squibb's."

The quality of the drug is an important factor in the treatment of disease, particularly in cases of emergency. Suppose the physician gets a bad, diluted and inefficient drug when the best has been demanded or a make of well-known merit specified, and the truth is found out, is there one who would not be willing to have the fraudulent dealers brought to justice, no matter how severe the punishment?

The many editorials, warnings and reports from honest physicians have put the profession on guard; in consequence physicians either procure original, unbroken packages or, not infrequently, do

not rely upon the druggists at all, but put up their own prescriptions.

Of late a certain class of supply houses have gone in the "surgical business," and by their circulars claim to be manufacturers of gauzes, bandages, dressings, suturing material, etc., and even sometimes claim that reliable houses, such as Tieman, Johnson & Johnson, etc., have made the goods up for them.

Often houses such as these have no facilities for the making of anything; what they do sell they buy where they can get the cheapest and paste their own names on as manufacturers.

If one calls for a special make of goods, or a special article, they say, "Yes, we have it doctor; this is put up under our own name by Messrs. N. N., and is their best brand."

As the article is put up to look like that of some well-known brand the doctor is easily deceived, but often disappointed in the results.

We have recently contributed an article headed, "Asepsis in General Practice" (*N. Y. Medical Journal*, Nov. 26) from which we beg to quote the following:

"I have frequently seen druggists and ambitious retail instrument dealers prepare and put up gauzes on an uncovered table, on which a few seconds previously another clerk had had his lunch. While preparing the gauzes the operator shook hands with several customers, sold instruments and test tubes, and went back to his work without even washing his hands, as if nothing had happened. Asked (by me) whether he meant to guarantee the sterility of his gauze, he answered, 'Sure, see how clean the gauze looks.' It is needless to say that I found a good many bacilli on one piece of gauze."

The general practitioner has no time to prepare his own dressings. for it requires all the precautions of a laparotomy, a good many instruments, chemicals, etc. It is folly to have every Tom, Dick and Harry play the manufacturer of surgical dressings.

There are reliable physicians' supply houses composed of capable, intelligent men, who buy and sell the best known brands of fluid extracts, tablets, appliances and dressings. Their existence is to the good of the profession. They are not substitutors or imitators.

There are others: Would-be manufacturers, substitutors, whose names and methods are unworthy of confidence.

The trouble is that in cases where poor drugs are prescribed, we may fail to save life, but in surgery, when we apply cheap dressings, which we believe to have been sterilized by the manufacturer—we may produce death. While the fraudulent dealer is the cause of such an outcome, we get the blame; therefore beware these wolves in sheep's clothing.—G. B., in *Journal of Scientific Medicine.*

RETAIL PRICES OF PLASTERS.

By the aid of the traveling representatives of Johnson & Johnson, and by correspondence, a canvass covering nearly the entire country has been made to ascertain the retail prices charged by druggists for plasters. Particular attention was given in this canvass to the retail prices of Johnson's Belladonna Plasters, which thus were found to range from ten cents to thirty cents each. (In Alaska Johnson's belladonna plasters retail at one dollar.)

The lowest price prevails only in a few instances, and has been reached by a general warfare of dealers, in which prices have been foolishly slaughtered and brought even below cost.

A price of thirty cents was fixed in a few places far remote from the business centers, and to which goods are freighted at great expense.

This interesting fact was developed. viz:—that the places where the higher prices prevailed were those showing the largest sales. One instance was found of a druggist who had cut the price to fifteen cents in the hope of gaining trade, but whose competitor in the same block, sold twice as many at the full price of twenty-five cents.

This aptly indicates that price is not always the most important factor in the sale of a meritorious article.

The average retail price of Johnson's belladonna plasters throughout the United States was found to be twenty

cents. Save in a few cities, the twenty-five cent price was found to have an overwhelming majority.

The lesson to be drawn from this is that a meritorious article will always bring a fair price. As a rule, Johnson's belladonna plaster will stand a higher retail price than any other.

Now that prices are generally on the increase, it would seem a favorable opportunity for those druggists, who for any reason have lowered prices, to advance them. Plasters are intended to retail at twenty-five cents each. Johnson's belladonna plaster gives ample return for, and is worth the full retail price.

If the makers could control the matter, they would insist upon twenty-five cents as the proper retail price. A druggist is entitled to a good rate of profit on everything he retails. Those druggists who are now selling Johnson's Belladonna Plasters at the regular price of twenty-five cents—which is a fair price—are enjoying a good sale and are making money.

HIGHER PRICES.

For more than a year past, the general trend of values has been steadily upward. In a recent editorial in the New York Evening Post it is stated:

"The rise in prices first of securities, then of general commodities which has been in progress for a year or more, has responded to an urgent and genuine demand. In both markets the world has witnessed what it witnessed in 1880—the movement of entire communities after a protracted period of liquidation and economy, to spend a portion of its accumulated savings and make good some of the sacrifices of a dead past; a season of active trade and rising prices follows, necessarily."

We are in the midst of a genuine business expansion; trade and commerce are expanding in volume, and extending in every direction. Expanded trade calls for more capital, more raw material, more manufactured products, more labor; coming gradually, but with increasing force, these calls exhaust the supply and the inevitable law sends prices upward.

Iron is higher, wheat is higher, meat is higher, wool is higher, cotton is higher, clothing is higher, lumber is higher, building material is higher, labor is higher, stocks are higher, money is higher, everything is higher. Every commodity having any sort of use in the world's economy has in one way or another been affected.

While with many articles in commerce extremely low prices, often reaching below the cost of production, have heretofore prevailed, at the present time the rising tide has extended to every branch of trade. In cases where increased consumption had long ago diminished the visible supply of the product, the expansion of commerce means a still higher price. Take for instance—india rubber; the progress of invention, in the way of motors, bicycles, electrical appliances, have for many years drained the world's resource for raw material.

With cotton, nothwithstanding an extraordinary large crop was harvested in 1898, a short crop in the present year will fall far short of filling a normal demand; the present increased demand must of necessity send prices farther upward.

In the particular branch to which our attention is directed, viz: the manufacture of medicinal plasters and surgical dressings, rising prices for raw materials have prevailed for more than a year. The recent advances have been rapid and very marked.

Taking the materials that enter into plasters—surgical dressings and appliances, we find the following ad-

vances have been made within a period of a few months:

Para rubber—advanced from 75 cents to 1.06—30 per cent.

Gums—advanced 10 to 35 per cent.

Cloths used as backing and covering—advanced 40 per cent.

Card board and paper—advanced 30 per cent.

Tin boxes and containers—advanced 60 per cent.

Belladonna root—advanced 60 per cent (highest grade doubled).

Cotton—best grades—advanced 40 per cent.

Gauze cloths all grades—advanced from 50 to 70 per cent.

Bleaching materials, antiseptics and chemicals—advanced 30 per cent.

Machinery and apparatus—advanced from 40 to 100 per cent.

Labor—advanced 10 per cent.

Other items—advanced from 5 to 50 per cent.

It is reasonable to suppose that the manufacturers will be compelled in the near future to advance their prices.

It would seem, therefore, that this is a favorable time for the jobber and retailer to raise prices that have been lowered, and thus keep pace with the inevitable tendency of the time—higher prices.

CONGRATULATIONS.

The catheters you sent me and made by Johnson & Johnson, are the finest I have ever used. I have had some very interesting work involving the genito-urinary track and it is quite likely I shall write up something upon the subject later. My congratulations to your friends upon the manner that they are doing up their silk and catgut (the single dry envelope method). Before they came out I prepared all my own, now I use Johson & Johnson. I buy from Hartz & Kuhlman of our city.

The cases that I operate on are generally surgical cases and emergency cases as found in a city the size of Detroit; also general operative work out through the state. Up to the present time my intentions are to stick to Johnson & Johnson for all my ligatures, sutures and also for my dressings. With best wishes for the success of your firm, I remain,

Your friend,
E. B. SMITH, M. D.

THE APOTHECARY AT PRAYER.

The illustration shown is a reproduction of a fifteenth century etching showing the ancient apothecary engaged in his morning devotions. We see him in his laboratory surrounded by the implements of his calling, kneeling on a mortar. It will be noted that the tiled floor, the panels, the ancient jars and pots, are emblazoned with symbols, all characteristic of the craft. The following is the translation of the prayer:

TRANSLATION.

O Thou most righteous God, by Thine five holy wounds, stand by me in my anguish and want. Forgive me my sins and my shortcomings. Show me Thy mercy and tenderness, and fortify me with patience and humbleness of heart. Deliver me from all sinful lust. In Thy hands I place body and soul. Protect me, O Lord, also my child and wife. O God, prove unto us Thy power. Thee we honor and praise. Listen to us, O Lord, and sleep lightly. Let Thine eye rest upon us at all times. Be not far from us in our suffering. Keep us, O Lord, in all eternity. Amen.

J.F.B.

RED CROSS NOTES

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SERIES II. NEW BRUNSWICK, N. J. Nº10

A STUDY IN COTTON.

JOHNSON & JOHNSON LABORATORIES

The Adonis Suspensory.

U. S. Patent 696,769.

Points of Convenience.

Easy to put on; only one buckle. Perfect adjustment. May be slipped to one side leaving the wearer perfectly free on occasion.

The support straps have a natural upright application to the body and their presence is not felt except from the comfort of the gentle elastic support.

Displacement never occurs.

No metal parts to interfere in washing. May be washed by the owner in a minute.

Johnson & Johnson,
New Brunswick, N. J., U. S. A.

NOTE

To the Medical Profession:

Your special attention is called to the Adonis Supporter. It is perfect. Price $1.00 to physicians.

RED CROSS NOTES

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SERIES II, No. 10. NEW BRUNSWICK, N. J. 1900.

NOTES.

An offer of absorbent cotton at a cent a pound under the regular price is a great temptation to the buyer, but the seller smiles as he loads the cotton up with soap, short fibre, and make weights that afford him an extra profit of five cents per pound.

To most minds the ideal represents the impossible, but the reports given elsewhere as to Red Cross Catgut imply that the ideal ligature is a reality.

Two Josephs have achieved world wide fame through the application of carbolic acid in their respective fields of operation. Dr. Joseph Lister introduced its use as a germ destroyer. Sir Joseph Chamberlain employs it in lyddite, the new Boer destroyer.

The names of all persons who send in their address stating that they would like to receive "Red Cross Notes" regularly is entered on a card and every issue is sent to their address. For all this there is no charge to the recipient.

There is a frequent issue of monographs on special subjects from the Johnson & Johnson Laboratories. Among recent issues are the following: "Dypepsia Diagnosis and Treatment," "A Statement of Facts," a discussion of true belladonna as against scopola (bastard belladonna),"Diet, Hygiene—in treating Stomach disorders," practical suggestions as to the application of other means than drugs in dyspeptic troubles, "Clinical uses of Lintine." A copy of any of these noted will be sent on request.

A series of very practical formulas for the use of Iodoform-Johnson are given elsewhere.

The list price of Red Cross Absorbent Cotton (this is the highest grade of absorbent cotton in the market) has been reduced to twenty-five cents per pound—in pound packages. Other sizes in proportion.

Johnson's Vaccination Shields have been improved by the use of a heavier and thicker felt, and an improvement in the adhesive compound. They are now packed in an elegant illuminated envelope.

A Physician's Descriptive List giving approximate prices charged by druggists for Johnson & Johnson's preparations is now in press, and will be sent to any physician on request.. Copies of this list for distributing among physicians will be sent to any druggist who may apply for the same.

"KEEP YOUR POWDER DRY."

(Contributed.)

The great general of Cromwell's army who admonished his soldiers to "Trust in God, and Keep Your Powder Dry," contributed a bit of wholesome advice for attaining success. The narrow-minded fanatic who reads only the first words of the sentence preaches that trust in Providence is all that is implied. The prudent-minded man, of perhaps less religious fervor but more solid sense, knows that in the heat of battle faith is useless if the ammunition is wet.

Over the door of one of the most noted operating rooms in the Old World the following inscription is engraved: "I dress the wound; God heals it." This sentence contains a truth that is everlasting and eternal. It required untold centuries for the world to learn the simple lesson that the physician, be he ever so skillful, cannot cure; that the surgeon cannot heal; that not in the pills, the powders, the incantations, the caustics, the salves, the dressings or the knife is the healing, curing power; but in the Almighty hand guiding nature.

This motto, "I dress the wound; God heals it," would prove fallacious if posted over the door of every operating room.

A vast deal depends on the surgeon, on his methods of dressing a wound and on the material used. We are told that in days not long passed, a wound often would have done far better not to have been covered or dressed at all

than treated with the material then in vogue; that the dust and dirt of the atmosphere, even the flies and maggots, would be less a hindrance to healing than to swathe the wound with materials full of infectious organisms, as was once the practice.

A wound will not heal unless it shall be dressed in a proper manner and with the right sort of material. Chance is not an element in modern surgery. "He who dresses a wound assumes the whole responsibility and is answerable for perfect and certain union."

The surgeon lays bare the flesh, puts on the dressing—he cannot heal; nor will the wound ever be healed unless it is rightly treated. Carelessness, ignorance, bungling on the part of the operator constitute a defiance of Providence, and are sure to lead to disaster. When the powder is kept dry then faith is founded on a rock. A wound which is handled and dressed with surgical cleanliness will surely heal.

Poor dressings, cheap absorbent cotton, unclean gauze, infected ligatures, bacteria-laden bandages are worse than wet powder in the time of battle. The graveyards are filled with monuments on which should be inscribed, "Died of unclean surgical dressings."

The laws of present-day surgery are clearly, thoroughly sustained and justified by facts. The surgeon of to-day is successful not only through the skill, the practice, the dexterity of eye and hand, but through careful and faithful attention to the rules of surgical cleanliness. The most skillful work with the knife or lancet may be rendered worse than useless by the neglect of some little point of aseptic purity. A train of complications will follow a brilliant operation, buried under a germ laden piece of gauze.

Some one has shrewdly said that the prayerful surgeon must also bathe. So, too, unclean cotton will make void and vain the prayer of faith. God alone can make new flesh, but the surgeon must bring that flesh to the altar with clean hands and wrapped in aseptic bandages. Cleanliness is life; the lack of it is death.

The surgeon who has operated under the principle of asepsis and has covered the wound with sterile dressings—whether the procedure be of the simplest or the most complicated—has done his part for a successful issue. "I dressed the wound with aseptic cotton; God will heal it."

A BALE OF COTTON.

The standard bale is 57 x 24 inches, and is intended to contain 500 pounds. Loosely packed bales are subjected to serious damage from rain, to which they are always more or less exposed; dust, dirt and rain easily penetrate and soil the cotton in the ordinary bales. In handling, the covering is torn, more or less cotton falls out and is lost. An attempt is being made to overcome these evils by putting the cotton in smaller, more neatly covered, compact and protected packages.

In Texas ginning and baling costs one dollar per bale. It is estimated that there are 23,000 ginning establishments in the cotton belt. The cost of the plants and power to operate them is estimated at $30,000,000.

Singularly enough, America sends out the poorest baled cotton of all the countries in the world. Cotton when poorly baled gathers dirt on every side.

WEIGHTS OF A BALE OF COTTON.

United States	507
East India	400
Egypt	733
Brazil	237
Smyrna	385
Peruvian, etc.	189

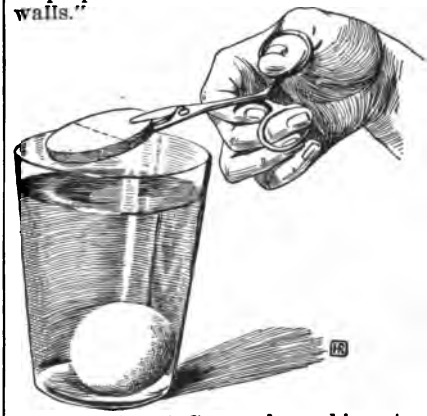
A TYPICAL COTTON FIBER.

A typical cotton fiber is thus described by Dr. Bowman: "A long tubular compound vegetable cell, from 1,200 to 1,500 times as long as it is broad. The outer or enswathing sheath of this is a continuous liber cell of pure cellulose, similar to those which occur at the outside of the cambium-layer of dicotyledons, or the cells which form the outer part of the fibro-vascular bundles of monocotyledons, and which are also found in the branches of those containing no spiral structures; and the inner or thickening layers of the tube consist of secondary cellular deposits upon this outer epidermic layer, or else are formed by a gradual thickening of that layer itself arising from the consolidation of the protoplasm or juices which supply nutriment, and which, by in some measure preventing the collapse of the thin outer sheath, strengthen and render it more elastic and expansible. The extreme outer layer appears to be formed of a continuous membrane, since no power which I have been able to apply to the microscope has enabled me to detect the most minute openings through its substance, and it is on this elementary pellicle that the cellular layers which appear to form the thickness of the tube walls are deposited in such a manner that they are, while united to it, still incapable of being separated from it into distinct laminae.

'I am aware that there are many botanists who make a distinction between the primary layer of fiber cells and the thin pellicle which forms the sheath of such a vegetable hair as cotton, but after all, the difference is one only of degree and not of kind, since it is extremely probable that the thickening of these hair walls arises from the successive deposits which occur within them during the process of growth, exactly in the same way as within the liber cell of wood fiber, only that these secondary deposits are not concentric like the layers within the liber cell of wood fiber, but consist in the development of a series of cells one over the other, whose walls are collapsed in upon each other, and which do not, except with the use of reagents, usually exhibit any signs of cellular structure; and in section from their extreme tenuity they can hardly be distinguished from a thickening of the outer pellicle or sheath itself. Hence, in the process of growth from the first formation of the hair within the boll to the mature fiber as it is fully ripe and ready for picking, we have every possible stage of this formation presented to us, from the immature fiber, where the thickening of the outer sheath has not yet begun, up to the perfectly ripe cotton.

"In that stage of early growth, either within the unopened boll or just after its first opening, where the length of the tube is almost reached, a cross section of the hair presents us with a single line like the cross section of a steel band, presenting no structure or, at most, only a single line to indicate that it has any internal opening, the same as would be exhibited by an exceedingly thin tube squeezed flat under such pressure as to completely collapse the tube and form it into a ribbon. As the development of the hair proceeds the thickness of the tube walls increases, and the ribbon-like structure gives place to a more and more distinct tubular form, when a central opening appears down the center of the oval hair section.

"In the perfectly ripe cotton the tubular form is distinctly seen in section, although from the want of strengthening layers in the spiral form, which always give increased rigidity, the shape is very seldom cylindrical; indeed, I have never seen it so except at the extreme end of the fiber where there appears to be a tendency to form a more solid structure on account of the less diameter of the tube in proportion to the thickness of the walls."



Bernay's Aseptic Sponge dropped in water.

A MOLECULE OF ABSORBENT COTTON.

Chemists get at the structure of a chemical compound by pulling it to pieces, examining the decomposition products, and afterward trying to get the original compound by putting the pieces together again.

This sounds easy, and in fact the pulling apart of any chemical structure is quite easy; but it's the putting together again.

When an attempt is made to show the arrangement of the atoms which make up the molecule of a body the formula is called the structural formula. In order to understand such a formula it is necessary to understand the accepted meaning of the words, atoms and molecules. F. Peckel Moller, in the "Law of Atomic Linking," gives us an interpretation somewhat as follows:

Experiments and observations have from time immemorial led our intelligence to the conviction that nearly all things we see around us are compounds of other bodies.

Gradually, as we learnt to know and to use such forces as heat, chemical force, electricity, &c., we succeeded in splitting up everything in the universe, including the sun and other fixed stars, into altogether sixty-nine separate and distinct bodies (exclusive of some dubious ones), each of which it has not been possible by any, at present available, means to divide further into others with differing qualities. These are what since Boyle's time (1627—1691) we understand by elements.

Now, if we take one of these elements—a piece of coal, for instance—cut it and firmly grind it in order to divide into the smallest particles possible, practically there is a limit when any further amount of grinding can make it no finer; but even theoretically there is a limit to its divisibility. Both physical and chemical phenomena and reactions tend to demonstrate that a piece of coal or any other element one cubic line in size, having been divided into some trillion equal parts, further division is impossible. Mentally, of course, we could go on dividing as long as we like, but practically it would be impossible.

These small particles are called molecules. Any one of them is in all respects as good coal as the larger piece from which it is separated.

Though not divisible mechanically, it is still possible to divide each molecule of an element through other forces, some in two, others in more, for each element equally large and weighty particles.

These ultimate particles of an element are called atoms. Their characteristic quality is that they can combine with other atoms and form molecules.

Just as we have demonstrated the division of elements, we can mechanically divide any compound body until we come to the molecule, which is not further divisible by that means. Calling, however, other forces to our assistance, we can split up the molecule into atoms of the different elements of which the compound consists, and these will assort themselves and then combine to form molecules of the different elementary constituents. It must be remembered that the molecules are so minute that there is never any question of treating a single molecule. In the smallest quantity of a compound—one cubic line, for instance—which practically can be treated by chemical means, there are some trillions of molecules. If, therefore, we can take one single drop of, say, carbon disulphide, which is a fluid, we have to treat so large a number of molecules at the same time. Every molecule of this compound consists of one atom of carbon and two atoms of

sulphur. We can separate them, but as soon as they are set free atoms of carbon from one molecule combine with atoms of carbon from other molecules, and form molecules of carbon; atoms of sulphur combine in the same way and form molecules of sulphur; so atoms cannot exist alone but must form molecules.

The first quality of the atoms taking our attention is their ability to unite mutually. The exact nature of this faculty is not fully known, but it may be regarded as a force by which the atoms bind one another together. It has been found that an atom of hydrogen cannot combine with more than one other atom of any sort. We therefore look upon the atoms of hydrogen as possessing this force of combination only once. If we take an atom of another element and charge it with as many atoms of hydrogen as it will accept, we naturally conclude that that atom has as many forces of the same quality as it has accepted atoms of hydrogen.

An atom of carbon, for instance, is capable of uniting with four atoms of hydrogen and no more. We therefore regard carbon as an element whose atoms are possessed of four of these forces. An atom of oxygen can combine with two (but no more) atoms of hydrogen; consequently it must have two similar forces.

In order to illustrate this graphically we may represent a carbon-atom with the letter C, upon whose circumference the four forces are represented as four equidistant and equally long lines, bristling like iron-filings on the pole of a magnet, still able to turn in all directions as if fixed to the atoms on pivots; an atom of oxygen as the letter O, provided in the same manner with two lines; and an atom of hydrogen is represented by a circle whose single force is fixed in the form of a line from the centre, thus:

—C— —O— H—

In all organic compounds carbon and hydrogen appear as never failing constituents. From the simplest combination capable of existence a carbon atom with its four valencies bound to four atoms of hydrogen, all the rest of the organic world can be gradually built up. This compound is termed methane.

Cellulose is placed by the chemists in the class of compounds known as Carbohydrates. Johnson's absorbent cotton is nearly pure cellulose, so named because all the compounds of this class consist of carbon combined with the elements hydrogen and oxygen in the proportion in which the latter form water. One of the families of Carbohydrates is the cellulose group—or poly hexoses with so far as known a composition ($C_6 H_{10} O_5$).

In this group have been placed the following substances:

CELLULOSE GROUP.

$C_6 H_{10} O_5$

Cellulose.
Starch.
Dextrine.
Arabin.
Sinistrin.
Inulin.
Glycogen.

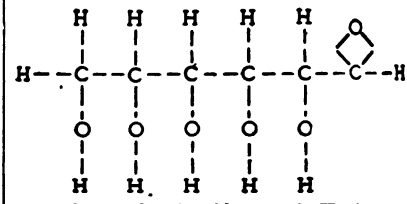
The members of this group are so closely allied that in the ordinary pulling apart they would give the same composition (six equivalents of carbon, ten of hydrogen, five of oxygen), but every one knows that there is a physical difference, for instance, between cellulose and starch or the other members named. There is also a difference as to their behavior with chemical agents.

Seeing this difference, many at-

tempts have been made to lay out their structure on paper.

Thus it has been found that cellulose is built up by joining together several molecules into one compound molecule.

Considering the behavior of cellulose in nitrated compounds and its reaction in the transformation into sugar (hexos) we consider it as a combination of hexoses, with the elimination of water, thus:



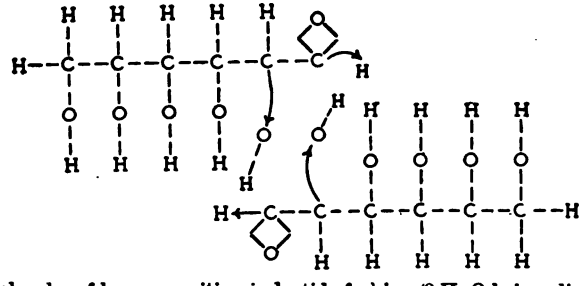
One molecule of hexose $C_6 H_{12} O_6$

Hexose Sugars. { Dextrose, Levulose, Mannose, Sorbinose } $-C_6 H_{12} O_6 - H_2 O$ — $C_6 H_{10} O_5$

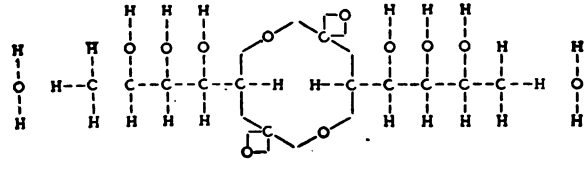
taking out water. Cellulose.

How many hexoses enter into the cellulose molecule we cannot tell, but it can be supposed to be two molecules of hexoses united in lactide fashion, that is to say a carboxyl and alcohol carbon of one molecule joining the alcohol carbon and carboxyl of the other.

The graphic illustrations will show how this can take place.



Two molecules of hexoses uniting in lactide fashion (2 $H_2 O$ being eliminated).



The cellulose molecule as formed from two hexoses (eliminating 2 $H_2 O$).

$(C_6 H_{12} O_6 - H_2 O) 2 = (C_6 H_{10} O_5)_2 = C_{12} H_{20} O_{10}$.

COTTON GINNING.

The handling of cotton in the field and thence to the gin was formerly done much neater that it is now; ginning was also better. The devices for separating cotton fiber from the seed are called gins; one kind is known as the roller gin, and the other as a saw gin. The roller is the most ancient and best form.

In India, cotton is ginned by hand; five pounds are cleaned in a day, at the cost of one cent per pound. In China, cotton is cleaned by a bowstring beater, fifty to one hundred pounds being cleaned by one person for ten cents. The combination of the roller gin and the bowstring beater is used for cleaning long staple Sea Island cotton.

The defects of the best methods of ginning are very great. They fail to clean the fiber from foreign substances, such as dust, fragments of leaves, etc. Some of the seed, especially the immature seed known as motes, pass through with the lint. In ginning, the fibers are often strained, weakened, or even broken; they are likewise crimped and knotted (termed neps or nibs) by improper force used in their removal. From all these causes a large amount of waste is always found in ginning cotton.

Edward Atkinson says: "By the use of the saw-gin we take three-quarters of the life out of our cotton, or nearly wear it out before we begin to weave it." In Waco, Texas, there is a gin house which has a capacity of 250 bales per day.

Ginning has not improved very greatly since the days of Whitney, the inventor. Imperfect ginning is a great source of loss in the manufacture of absorbent cotton.

CHEAP DRUGS IN HOSPITALS.

The following interesting items have appeared in recent issues of the *American Druggist:*

"A good deal of dissatisfaction is being quietly expressed by a number of the wholesale druggists and manufacturing pharmacists doing business in New York City over the action of the purchasing agents of certain of the larger hospitals of the city in pitting one firm against the other in the matter of prices. Many of the manufacturing firms have refused to make quotations to these hospitals on the ground that there is neither credit nor profit in the business, owing to the methods pursued by the purchasing agents of these institutions, usually the superintendent of the hospital himself.

"A regular trust or pool seems to exist among the hospital superintendents, the main object of which seems to be the utter demoralization of prices, and a cheapening of the quality of the goods. In asking bids on pharmaceuticals, it is the custom of half a dozen of the larger institutions to make manifold copies of the requisitions for supplies and ask for bids from a dozen rival firms. Prices are then contrasted and an effort is made to cut the price on the lowest bid submitted. This has been going on so long that advantage has in a number of instances been taken of the greed of the hospital authorities to make a special grade of goods for their use which can be sold cheaply. The result is that the average quality of the drugs used in hospital practice is in many cases inferior to that sold in the smaller drug stores.

"Deception is not infrequently practiced on the surgeons of these institutions, such, for instance, as the substitution for Squibb's ether of the ordinary C. P. article made by a manufacturing chemist who has no reputation for the manufacture of stronger ether for anæsthesia, and so it goes all along the line. The fluid extracts are either deficient in extractive matter or alcoholic strength, or both, and ointments are prepared with the coarsest quality of petrolatum because expenses must be kept down and a good showing made for the outdoor dispensary, where prescriptions are sold in competition with the retail druggist, often at a profit.

"As we have intimated, many of the leading pharmaceutical firms refuse absolutely to have any dealings with the local hospitals, as it is no longer creditable to them to have their preparations used there. We know of one institution where a Western make of ether is boldly decanted into Squibb's containers, and the helpless surgeon and still more helpless patient are left at the mercy of a business agent, who is concerned merely in the economical management of the hospital. The apothecary is not to blame in the matter, as it is presumed that the trustees of an institution where such practices are allowed are fully cognizant of them, and the deception and substitution are practiced with their approval."

"With the exception of one hospital in this city, Bellevue, of which Dr. Charles Rice is the chief chemist, we know of no other institution where a systematic inspection of drugs and chemicals by expert chemists is conducted. This is what gives us reason for believing that the average quality of the drugs used in hospital practice in this city is below standard. That the greed of the managers of hospitals has been taken advantage of to provide a quality of goods equal or nearly so to the price paid is no longer a secret.

"It was the custom, for example, not very long ago for one of the larger hospitals in this city to import the gauze used in the surgical operating room from a certain mill in Germany, where exceptional precautions were taken to provide an aseptic article of great purity, softness and absorbency; but importations from this source ceased some years ago, and gauzes are now purchased in the cheapest market—gauzes filled with all sorts of filling materials, such as gums, starches, dextrin, albumen, etc., to increase the apparent absorbing power. When gauze loaded with such fillers is used for wound dressing it becomes a matter of serious importance both to the surgeon and to the patient."

CHEAP DRUGS IN HOSPITALS.

"To the Editor:

SIR:—We have been aware of the existence of the condition of affairs referred to in the editorial in your issue of April 25th for some time past. We have long recognized that fluid extracts and other hospital necessities are constantly supplied at prices lower than what it costs us to produce goods bearing the same name. To us that has been tantamount to a proof that quality has been sacrificed to cheapness and we have kept aloof from the attempt to tender in all cases in which we have observed such a state of affairs. We do not think that the medical staff of the hospitals and similar institutions are a party to this practice and we do not think they are even aware of what is going on. Yet it must be confessed that they are negligent in failing to assure themselves of the quality of the drugs which they administer. The responsibility rests to a greater extent on the ordinary administrative management, yet we do not think that they are fully cognizant of the harm which is being done under their administration. Naturally they hope to be able to do many things in the institutions, and to accomplish the full programme they find it necessary to practice the most rigid economy in every department. Hence arises the system of ordering drug supplies to be obtained by tender and acceptance of the lowest bid. The neglect appears in not specifying that the quality shall be maintained in all such supplies. Neglect of that provision makes it possible for superintendents to make a record for economy by accepting the lowest numerical bid presented by any dealer who is willing to palm off on them inferior articles. Managing boards can remedy this great evil by insisting on the assay of all supplies before acceptance. No fair-dealing house would object to this, and any objection would at once appear suspicious. We believe that such supplies should be bought in intact original packages bearing the name of responsible manufacturers, but even if that be deemed inadvisable a great reform will be accomplished by insisting on assay.

"MANUFACTURER."

ATROPA BELLADONNA.

Herbarium Specimens.

Messrs. Johnson & Johnson have received from the fields where belladonna grows a number of herbarium specimens of the genuine Atropa belladonna.

These specimens show the typical stalk, flower, and leaf and fruit of the wild plant. They have been selected and mounted with great care by expert botanists in the field.

The number of these specimens is limited, but Johnson & Johnson generously offer to place them at the disposal of Institutions who may desire them for scientific study.

As long as the supply lasts they will send one specimen to any Medical or Pharmaceutical College, Society or Museum, or such others as may desire them for teaching purposes who may apply for the same.

DYSPEPSIA.

It has been said that indigestion is the prevailing malady of civilized life, and it might be added that it is not entirely unknown among savages; therefore, anything of practical value upon this topic is of interest to every physician, as it is probable that in the common run of practice their consultations about disorders that belong to eating and drinking are more frequent than perhaps any others.

A concise pamphlet upon this subject has just been issued by the Brunswick Pharmacal Company entitled "Dyspepsia Diagnosis and Treatment." The first pages of the book contain a most excellent article by Dr. Lewis N. Foote, dealing with the procedures which are most useful as well as practical in arriving at a diagnosis in the diseases of the stomach. The methods for the most part are those which have been tried and found serviceable under the supervision of Dr. Chas. S. Fischer of the Vanderbilt Clinic, New York.

Dr. Foote gives a scheme for record and history of the case, embraced in a blank for the interrogation of the patient; description of the ailment; clinical history of the case; physical examination and diagnosis. Included with this is a chart for recording the physical examination (as devised by Dr. Fischer), methods of analysis of the functions of the stomach, microscopical examination, test meals, etc.

The second section of the pamphlet contains an epitomized report of the diagnosis and treatment which has been actually carried out in over one thousand cases of disordered digestion. In these cases, among the therapeutic agents employed was Johnson's Digestive Tablets. The reports give both the favorable and unfavorable results with brief suggestions as to hygiene, etc.

We believe that this little pamphlet will be found useful to every general practitioner as well as specialist.

Upon an application to the publishers, Messrs. Johnson & Johnson, New Brunswick, N. J., copies will be sent free to any physician.

JOHN E. BROOKING, M. D.,
Hallowell, Me. Dec. 11th, 1899.

Messrs. Johnson & Johnson:

Dear Sirs—Some time since you sent me at my request a bottle of Digestive Tablets.

I used a few of these, powdered, to clean off the hardened portion surrounding a chronic tibial ulcer, applying once in twelve hours; the effect was good, and produced without discomfort.

The balance I gave to a man with chronic gastric catarrh. Dose: three tablets after each meal; later reduced to two, and then one. The relief was rapid and he now tells me his stomach is all right. For a time it was necessary to keep him on easily digestible dietary. He said it was the only medicine that gave him relief, and he had been to see six doctors in neighboring cities, and was beginning to think he had cancer.

It is certainly a very valuable formula. Thanking you for having provided me with above sample.

Yours truly,
J. E. BROOKING, M. D.

WANTED.—Address of Dr. Chas. Milton Buchanan, author of "Asepsis and Antisepsis." "K" care of Red Cross Notes, New Brunswick, N. J.

WANTED.—Photographs pertaining to the growth of the cotton plant. (Cotton fields, cotton culture, gathering, etc.) Give description and price. "J" care Red Cross Notes, New Brunswick, N. J.

WANTED.—The undersigned is interested in the history of Antiseptic methods and dressings and would like to obtain specimens of the first types of Listerian Dressings. What is wanted particularly is specimens of cotton, gauze, lints, pastes, etc. as first used under the Listerian system (beginning about 1865-1870). Must be authentic specimens and made prior to 1890. Send description and price. F. Barnet, care Red Cross Notes, New Brunswick, N. J.

THE UNDERTAKERS AND LINTINE.

The undertakers and embalmers have been very quick to adopt Lintine as an absorbent and protective.

In their practice it is applied to the face or other parts of the body for bleaching or keeping the flesh moist, and latterly it has been used as a wrapping for the entire body, especially when death has resulted from contagious diseases. In some states, under these conditions, the law requires that the corpse shall be enveloped in absorbent cotton or other material. It is also required by some laws that the wrapping material shall be saturated with some antiseptic, as corrosive sublimate or carbolic acid. For such a purpose, nothing could be superior to Lintine, as it is readily adapted to the body, will carry a good amount of antiseptic fluids and has a perfect germ proof covering. The following is an extract from a circular issued by a large dealer in undertakers' supplies:

"This is a superior preparation of absorbent cotton, made into sheets of uniform thickness and has the absorption qualities of a sponge. When saturated with fluid and applied to the face the bleaching process is accomplished with but few applications on account of the length of time Lintine will hold moisture. Applied to the face of a body being shipped, it reaches its destination with a moist, fresh appearance, and the friends are pleased. In this connection alone it is invaluable to any undertaker. It readily accommodates itself to the form of the features so that every part of the face, hollow or prominent, comes equally in contact with the fluid and all is bleached. Lintine is also indispensable as an absorbent in dropsical cases."

The letters here given show the approval which has been accorded Lintine by the Boards of Health, as well as its recognition as filling every legal requirement.

SPRINGFIELD, ILL., March 18, 1899.

Gentlemen—The sample of felting cotton fiber (trade name "Lintine") which you have submitted to this Board is considered a satisfactory substitute for a one-inch thickness of absorbent cotton. This fiber can be used by the licensed embalmers of Illinois in lieu of absorbent cotton, in the preparation of bodies for transportation.

Very respectfully,

J. A. EGAN, M.D.,

Secretary and Executive Officer State Board of Health.

NEW HAMPSHIRE, March 8, 1899.

Gentlemen—We are in receipt of your favor of March 2, together with a sample of "Lintine." The material would appear to be well adapted to the purpose for which it is intended.

Yours very truly,

IRVING A. WATSON,

Secretary State Board of Health.

MONTREAL, March 22, 1899.

Gentlemen—I beg to acknowledge receipt of your letter of the 3rd inst. and of a sample of "Lintine." In answer I beg to say that the Lintine will certainly serve the purpose of the "sheet" our regulations prescribe.

Yours sincerely,

ELZEAR PELLETIER,

Secretary Board of Health Province of Quebec.

SCHEDULE H (of Regulations).

Disinfection of the body of a person who has died of contagious disease.

Wrap the body in a well-sewn sheet completely saturated with one of the following solutions:

1. Bichloride of mercury: 2 drachms to 1 gallon of water.
2. Carbolic acid: 4 ounces to 1 gallon of water.
3. Chloride of lime: 5 ounces to 1 gallon of water.

Put 2 pounds of chloride of lime in the coffin.

A SEVERE TEST.

The following letter shows a most severe test as to the reliability of the processes by which Red Cross Ligatures are prepared, and also as to the asepsis of Red Cross Catgut as found in the market.

It will be noted that the Bacteriologist purchased six packages in the open market, taking care to obtain those which had been in stock for some time, and in each instance the gut was found absolutely sterile. He also proved that the process of sterilization is sufficient to kill the spores of bacillus subtilis, an organism much more resistant to heat and chemical disinfectants than any liable to be found in practice.

Brooklyn, N. Y., Nov. 29, 1899.
Johnson & Johnson,
New Brunswick, N. J.

Gentlemen:—At your request I have examined six samples of your "Red Cross Ligatures" (catgut) purchased in open market, for sterility; and six samples of gut which was infected by me with sporulating B. subtilis, marked in such a manner that I could identify it, and then sterilized by you and returned to me for examination. The samples purchased were obtained from three well known druggists in Brooklyn, and, in order to make the test as severe as possible, I requested that packages be given me that had been kept in stock for some time.

The outer envelope of each package was opened by burning the end until it opened spontaneously, the inner envelope withdrawn with sterile forceps, cut open with sterilized scissors, the gut removed with another pair of sterilized forceps, dropped into sterile bouillon, and allowed to remain at a temperature of 37 C. for seven days. At the expiration of this time the tubes were sterile, showing that the gut contained no living bacteria.

The gut infected with B. subtilis, when returned to me was packed in the usual manner in two envelopes. This gut was handled in exactly the same way as the other and gave the same result. In none of the tubes did any growth of B. subtilis appear.

The test shows that the gut as found upon the market is sterile, and that the process of sterilization employed is sufficient to kill the spores of B. subtilis, an organism more resistant to heat and chemical disinfectants than any pathogenic microbe.

Yours truly,
R. B. Fitz-Randolph, A. C.
Hoagland Laboratory.

At a meeting of the Brooklyn Gynecological Society, Dr. Chas. Jewett, Prof. of Obstetrics, Long Island College Hospital, read a paper upon "Clinical Notes and Methods," in the course of which he said:

"Excellent gut, sterilized by the Cumol method, at 330 F., is furnished by two different commercial houses. By one the suture is packed in small sealed paper capsules. By the other it is enclosed in a sealed paper envelope [Red Cross Catgut Johnson & Johnson], and this again in another envelope. This material, if the packing is managed safely, is undoubtedly aseptic. I have used it in all kinds of work and have had no reason to doubt the thoroughness of the preparation. The gut is remarkably strong, and if the packages are not exposed to moisture, will doubtless remain sterile for an indefinite length of time."

In the discussion which followed the reading of this paper

Dr. Baldwin said: "In regard to the preparation of catgut, it has always seemed to me that a commercial house, which makes a business of it, could put up catgut better than I can. A house of good reputation can surely be trusted to do the work thoroughly. During the past five years I have used catgut prepared by such a firm, and it has always given satisfaction. I have never been able to trace a case of sepsis to it."

Dr. H. P. de Forest stated that "Last summer in major operations in the Seventh Army Corps, the catgut which is prepared by Johnson & Johnson [Red Cross] was used with good results. In many instances in which sepsis is attributed to catgut, it is really due to lack of cleanliness on the part of the operator or his assistants. If we could boil our hands as we boil our catgut, we would do truly aseptic work—as it is, catgut is infected by handling it after its preparation. I have tested catgut prepared by the various methods and it has nearly always remained sterile in culture media. Catgut prepared in formalin or alcohol should give excellent results. The former seems better to preserve the elasticity of gut."

Clinton, N. C., Dec. 5, 1899.
Johnson & Johnson:

Gentlemen—I enclose you an envelope which contained some Red Cross Aseptic Catgut Ligatures that I got in the habit of using while assistant surgeon in the United States Volunteer Army in Cuba, and found that it was perfectly antiseptic and could be used without any more preparation, and now in private practice I desire to continue their use.

Please let me know what you charge for the same, both in catgut, silk and silk worm gut; also prices of your dressings and cotton. I remain, Yours truly,
R. E. Lee, M. D.

RED CROSS LIGATURES: HOW TO OPEN THEM.

Cutting outside envelope.

Numerous inquiries have been made as to the best method to be followed for handling Red Cross Ligatures in the operating room, in order to guard against any possible danger of infection. The answer is simple enough. There is far less danger of infection in the use of Red Cross Ligatures

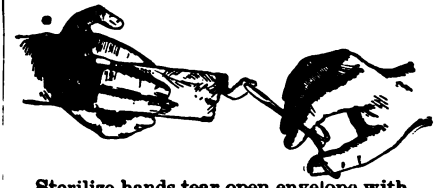
Taking out inner sterilized envelope with forceps.

than would follow in handling in any other style of package. These ligatures are encased in two envelopes. The outer envelope can be

Dropping inside envelope into warm sterile water.

torn open with infected hands without contaminating or touching the ligature, which will still remain protected. If the inner envelope is next opened with disinfected shears, forceps or clean hands, and the ligature itself removed with sterile forceps, and proper care is observed in handling after removal, the strings cannot be other than perfectly aseptic.

There is a point, however, in the use of these ligatures which is very advisable, viz: Upon the removal of the inner envelope it should be dropped, envelope and all, into warm sterilized water. This softens the ligature, renders it pliable, increases the strength, and insures against breaking at the knot. An antiseptic solution may be



Sterilize hands tear open envelope with sterile forceps.

substituted for this sterilized water if desired.

The illustrations herewith given are drawn from life, and show the practice actually followed in one of the best known gynecological operating rooms in this country.

The use of Red Cross Ligatures un-

Withdraw string with sterile forceps.

der these methods has been demonstrated to be much easier than the removal of a string from any other form of container, and the results have shown that all danger of infection from catgut is obviated.

The method is simpler than it reads; easier than it looks.

HANDKERCHIEF INFECTION.

The spread of contagion through sputum discharges from the infected patient is well established. In consumption the danger lies almost exclusively, as is well known, in the dried sputum of the patient. While this is moist it is harmless, but on drying it pulverizes into a fine powder, carrying everywhere in the air tubercle bacilli. For the person afflicted with tuberculosis who is not confined to his bed, and he is the one who is the most dangerous because he is often not suspected and because he comes in contact in going about the streets and riding in the public vehicles with very many persons—for him there should be provided handkerchiefs to be used in lieu of cups. The supply, of course, needs to be generous, and they should be promptly burned after use.

The use of these destroyable handkerchiefs by many more than those afflicted with tuberculosis ought to be widely urged.

Dr. J. W. Brannan of New York, recently forcibly urged the use of such handkerchiefs among families whose members suffered from any form of cold, influenza, catarrh, or any affection of the breathing organs. It has been found that all of these ailments are communicable, and that, too, almost entirely through contamination from the discharges.

To meet this need Johnson & Johnson have provided the Red Cross Antiseptic Handkerchief, made of a piece of fine, soft cloth about the size of the ordinary handkerchief, each one being impregnated with an effective antiseptic which at once disinfects the discharge. The Red Cross Antiseptic Handkerchief can be obtained at a very low price, and after use are to be burned up, thus effectively preventing the spread of contagion.

Their general use would work an almost incalculable benefit. In point of fact, there is an almost intolerable want of cleanliness in much of the present use of linen handkerchiefs.

The safest, easiest, and most cleanly way, is that every house-mother should see that a stock of the Red Cross Antiseptic Handkerchiefs is kept on hand just as coal is kept in the cellar or flour in the bin. Whenever a child or any member of the family has any sort of ailment of the eye, ear, nose, or throat which is accompanied by a discharge, these Red Cross handkerchiefs should be supplied to him in ample quantities each day, to be quickly burned on his return to the house. He should use them also in place of towels.

The habit that children have of using the handkerchiefs of playmates who may or may not be suffering from some of these troubles, should be suppressed. A child should be promptly taught that handkerchiefs are as personal and non-interchangeable as tooth brushes. This simple precautionary measure will work directly towards the mitigation even of consumption, for it is the infection and reinfection from the early catarrhal and bronchial stages that assist in producing the final serious result in the patient and tend to sow the contagion broadcast.

Red Cross Antiseptic Handkerchiefs.

PLASTER OF PARIS IN SURGERY.

N. A. DRAKE, M.D., KANSAS CITY, MO.

The first thing, be sure that you have good plaster paris. If you prepare your own bandages, get the very best dental plaster. In selecting the cloth for the bandage, firm cheese cloth or crinoline is best. Cut three inches wide; you can use this width in nearly every case. The cloth can be procured in nearly every dry goods store, while the plaster can be found at every surgical supply store. If you make your own, be sure and rub in plenty of powder and make very smooth and then roll loosely. I hardly ever make my own now, as Johnson & Johnson's make have never disappointed me. They are perfectly reliable in all the goods they make.

Have in your kit a box of loose powder, several strips of tin for splints; also, a roll of good-sized twine, this to incorporate in the cast where you wish to cut it open. And the tin splints to be placed in the weakest place, usually under the arms. A close-fitting shirt, seamless undershirt, must not be forgotten.

The day before the cast is applied the patient should take a bath and be thoroughly shampooed. Also remember to always put a dinner pad over the stomach, next the skin, ere you commence putting on the bandage, which is removed as the cast becomes set.

Place a bandage in a basin of water in which you have thrown a handful of table salt; this will cause the cast to set more quickly, and as soon as the water has gone through it, squeeze out the surplus water and as you take this out put in another, which will be ready by the time you have applied the first.

Begin at the hips and work rapidly upwards; draw the bandage tightly; rub it down smoothly ere applying a second, and lay a twine where you wish to cut it open. Apply the second in like manner, and be sure to smooth under the arms and over the hips.

If necessary to stiffen with splints, they should be placed under the last layer and under the arms, which is the weakest place in the cast. Usually three layers or courses of bandages will be sufficient. And now, after the last is on, dip your hands in dry powder and go all over the cast, making it smooth and nice. While this application is going on the patient is kept in the exact position assumed at the beginning.

When all is done the patient is let down and laid on the table till the cast is set; meanwhile round up the points under the arms and over the hips, then remove the dinner pad. By this time the cast will be perfectly hard and the patient can dress.

And now comes the rub. After all has been successfully put on and all the indications are met, it should be kept there till the patient is well; certainly till the cast is so worn that it no longer meets the indications, when a new one should be substituted. If the patient is a child and too young to understand the object of treatment, the nurse has to constantly be on the watch, in order to keep the cast intact.

If an adult, or a child is old enough to understand the reason of things and will aid in every endeavor, the task is easier. But I tell you 'tis no small thing. It must be kept from irritating the skin under the arms and over the hips. Every device to keep these points well must be used. Do not crowd rolls of cotton under there, as some do; rather rub and smooth the parts away; pressure must be avoided. Be on the alert all the time to make the patient comfortable.

In fractures—It has always been a mooted point when to use plaster paris in fractures. With me the rule is to apply as soon as possible. The exceptions are few. Immediately after the accident and before there is any swelling is the proper time.

If it is a simple fracture, put the limb in its natural position and put the cast on next the skin. Do not forget to remove the hair, and if anything is put next the skin let it be thin.

If applied before there is any swelling you have an exact cast of normal limb. As soon as the primary swelling begins to cause pain, cut the cast open completely, but do not remove it. This will give all the vent necessary, and for safety tie several strips of bandage around the cast.

When the time comes to examine the limb, spring the cast open and lift it out. Bathe and rub thoroughly, then return to its bed, after padding it lightly. It should be drawn as tightly as the patient will allow. By this you will secure a certain amount of extension. Great care should be taken not to disturb the fracture. This can be repeated as often as necessary.

You will readily see that you have

this broken limb under perfect control all the time.

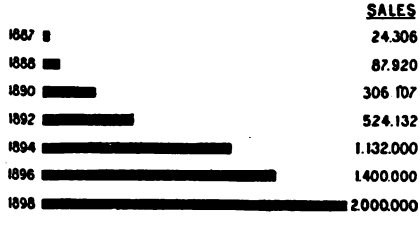
In compound and comminuted fractures it is just as simple. Of course all complicated fractures should be reduced to simple fractures as nearly as possible. A trap should be cut where you expect any discharge. I do not hesitate to put up compound fractures with plaster paris any more than I do simple ones.

If when first seen the swelling is great, I may defer putting on a plaster dressing till the first swelling has subsided. I have, however, put them on badly swollen surfaces, because there is nothing that will reduce swelling faster than equal pressure. When it does subside, cut the cast open and cut off a strip from the edge, thus following the subsidence of the inflammation.

A patient treated in this way will get on crutches much sooner than when treated by the old kind of splints. I make it a rule that as soon as the patient can sit with the foot a short time on the floor without swelling and hurting to commence to use crutches. And as soon as union is begun, I lift the limb out and bathe it with hot carbolized water and practice massage for a short time, much more often than when dressed with other kinds of splints. Usually when the patient has learned to walk with crutches, I put on a silicate of soda splint, as it is lighter and less bungling than plaster. I apply this just as I do plaster paris. Then after a short time I cut open on the back and make two light side splints. This, of course, after firm union has taken place.

JOHNSON'S BELLADONNA PLASTER.

Merit Proved By Growing Sales



INTESTINAL INDIGESTION.

Some time ago Dr. Thomas Hunt Stucky, Professor of the Theory and Practice of Medicine and Clinical Medicine, in the Hospital College of Medicine, Louisville, Ky., delivered an address upon Intestinal Indigestion, at the invitation of the Faculty of the Marion-Sims College of Medicine, of St. Louis.

This address was originally published in pamphlet form, and has had a very extensive circulation, having found its way into several foreign journals.

Dr. Stucky treats the subject in a very scholarly and pains-taking manner; at the same time it is thoroughly practical and really amounts to a text-book or manual upon the subject.

He first takes up the consecutive steps in the process of digestion, showing that intestinal indigestion is the last step in the process, and that its proper performance necessarily depends upon the completeness of the previous stages. This is followed by concise suggestions for diagnosis and study of the causes and treatment of:

Catarrhal enteritis (including the clinical forms), cholera infantum, acute enterocolitis, croupous enteritis, phlegmonous enteritis, mucus colitis, ulcerative enteritis, diagnosis of intestinal ulcers with treatment.

Two or three editions of this pamphlet have been exhausted, and a new one has recently been printed in order to supply numerous requests sent in from all parts of the country.

The pamphlet is especially valuable to students of medicine, and not out of place on the table of any practitioner. Dr. Stucky's observations are the result of long experience, study, teaching and actual practice.

As long as the present edition lasts a copy will be sent to any physician who may send to the publishers a request for the same. For the present they are supplied without cost.

The publishers are Johnson & Johnson, New Brunswick, N. J.

A PATIENT'S TRIBUTE.

It happened to one of our readers to be an inmate of one of the good hospitals in our land on two distinct occasions within a period of a few weeks.

During his first stay Iodoform, "the skunk of surgery," was used on several cases in the ward where he was lying. He was nauseated by the odor, and became very nervous; indeed he felt that he would—to quote his own words "rather die than try to live in such a stinking atmosphere."

Upon the occasion of his second stay "Iodoform Johnson," or Iodoform that had no odor, was being tried. All was changed; our patient's joy was unbounded. He made minute inquiry why it was that one kind of Iodoform should have a vile smell, and another kind of Iodoform should be devoid of odor, while having the same properties and yielding the same good results as the offensive sort.

His nurse gave an explanation that showed it to be true, but which, being a layman he could not understand.

During the [illegible] he wrote the following tribute to Iodoform Johnson:

THE SWEET MAID—IODOFORM.

[illegible]

But, unfortunately, Iodoform had a most disagreeable odor. Wherever she went you could smell her. The odor was like nothing in the earth, under the earth, or on top of the earth. For this reason people would hold their noses as they went by her, and—oh, the pity of it—even the sick people whom she waited on could hardly endure her presence. This made Iodoform sad, and so she would frequently retire to a lonely spot and weep.

One day, while she wept, she heard a voice saying:

"Why weepest thou, fair maiden?"

She looked up and saw the Guardian of the Threshold.

This is a thing that looks like a large black frog—oh! a very large frog, say as large as a dog house—with bright yellow spots all over him, and seventeen playful tentacles projecting from his sides. His principal business is to discourage youthful magicians, which he does by scaring them. He really is a very pleasant gentleman, when you come to know him;—but you've got to know him first.

"Why weepest thou?" repeated G. T.

"Oh! I exhale such a dreadful odor," moaned Iodoform; "and nobody loves me, and everybody shuns me, and I do so like to help people, and oh, I wish I was dead."

"You certainly do," responded G. T., scratching his head. "I suppose you know how it happens that you have such an odor?"

"No."

"Karma."

"What is Karma?"

"Karma is the sum of your actions, whether good or bad," answered the Guardian of the Threshold. "In some former existence your actions were probably extremely wicked, and this odor has come upon you for your sins."

"Well, but I am very sorry for all my sins, past and present," penitently said Iodoform.

"That has nothing to do with the case. You reap what you have sown, independently of your feelings. The immortals are deaf. However, I will see what I can do. Step over with me into the Astral Light, and I will try to remove the odor. I don't like to fool with Karma, but in your case I will make an exception."

"Where is the Astral Light?" asked Iodoform.

"Just next door to the Philosopher's Land," answered G. T.

"Why do they call it the 'Astral Light'?"

"To hide their ignorance."

"You mystify me. What is the Astral Light?"

"It is that which was and which is to be, and that from which no man has yet removed the veil—the gift of Mother Isis, Queen of the Silver Sheen. But shut your eyes, my child, till I swing you into it."

Iodoform closed her eyes. G. T. shut his nose with one tentacle, took hold of her with another, while with a third he drew two triangles on the sand, and repeated the word "AUM" three times, —and in the wink of a spider's eye they were in the land of the Astral Light.

I shall not tell you anything about the queer things in that land, because of my oath; so you must guess what Iodoform saw there.

The Guardian of the Threshold drew with great care a pentagram, and placed Iodoform in the exact middle of the figure. Then he drew his sword to keep the bad spirits away, and he summoned to his aid the Salamanders, a race of spirits who live in the fire. Then, with these spirits entirely surrounding Iodoform and protecting her, the Guardian of the Threshold, holding in one tentacle a sword of glass, and waving aloft the other sixteen tentacles, in measured cadence crooned this song:

"Sway thou in the Astral Light,
Carbon, Carbon, Oh!
Iodine, let's see you dance
In the quick step that you know.

"Hydrogen, don't link too fast!
Now then, please salaam,
While you all change hands around
On the mystic pentagram."

And lo! presto, change! The odor had departed from Iodoform. I don't know where it was sent; perhaps to the country of Never Again.

"How can I thank you, my noble, wise friend?" gratefully asked Iodoform.

"By giving me your hand in marriage in my next reincarnation," responded G. T.

"Why not in this?"

"My professional duties forbid it; and, besides, I think I can work off my Karma better in an unmarried state."

"Well, anyhow, I do most heartily thank you," said Iodoform. "Come and see me often. I—I think I like you."

"Auf wiedersehen," courteously responded G. T., waving all seventeen tentacles at once. And in exactly two shivers of a humming bird's wing Iodoform was back in the land of Prester John.

And all the people came running up to her, and shook hands and laughed and cheered and hooted, until you would have thought they were all crazy. And all the people with wounds and bruises and sores rejoiced; and all the sick persons rejoiced; and the surgeons—well! you never saw sane people get so excited as those surgeons did.

And they all cried—"Three cheers for Iodoform Johnson, our lovely, sweet-smelling nurse!"

And the noise reached the Guardian of the Threshold, as he sat on the edge of the Astral Light. So he cheered, too, for Iodoform Johnson.

JOHNSON'S ODORLESS IODOFORM.

I am not sure how many "odorless iodoforms" I have investigated, but it must be somewhere betwen fifty and one hundred. Some of them were disguised by a worse smell than the original, some were only odorless to the olfactory nerves of their discoverers, and a few were really odorless, or at least devoid of unpleasant odor—for a time. A number of volatile substances disguise iodoform very fairly when freshly mixed with it, and applied, but alas! the deodorizer evaporates and the effluvia of the "dead give away" powder, associated with the aftermath of Venus' sweet warfare, comes out triumphantly.

Several months ago I received a bottle of Johnson's Odorless Iodoform, with a polite request to investigate its alleged merits. "Same old story," I thought, and the bottle lay in my satchel for months. But at last I did investigate it. I always do. The bump of curiosity is largely developed under my luxuriant curls. And I do love to get hold of something better than my very good friend Dr. A. possesses.

Well, the iodoform was not odorous, nor in the slightest sense suggestive of the old product. And it is permanent! For months I have carried that bottle in my satchel, using the contents for every purpose to which iodoform can be applied by one who believes in it, and this variety has answered every call made upon it satisfactorily, and the character has not altered. Mouth ulcers have been dusted with it, and faded from the consciousness of their unappreciative possessors; old leg-ulcers have quit hurting and healed rapidly under the ointment; intertrigo has disappeared after powdering with lycopodium and iodoform surgical wounds have healed by the first intention under the powder thickly applied. But these things have happened when one or other of the substitutes for iodoform has been applied. How about the crucial test—the chancroid? For hitherto not one of the new iodic preparations has approached iodoform in assuaging the wrath of the soft sore.

This week my first case for a long time appeared, for I do not cultivate that line of practice. An American citizen of mixed descent, but chiefly African, in the employ of our expressman, presented himself with two buboes and a rapidly progressive chancroid. The sore and vicinage were cleansed with mild antiseptics and the chancroid dusted with the odorless iodoform. He had been shipmates with the old sort, and expressed a decided disinclination for a renewal of the acquaintance, as he "lived at home." To-day he returned radiant. The sore had ceased to give pain and was healing, the glandular inflammation was subsiding, and the family had not suspected the nature of his malady. Iodoform could not have done the work more effectually.

This is a valuable preparation. Therapeutically I have been unable to differentiate between it and the ordinary iodoform, while the slight odor is neither unpleasant in itself nor suggestive of iodoform. Mr. Johnson's preparation will replace the ordinary iodoform wherever it attracts the attention of the profession. I have not tested the new preparation internally, because the question of odor is here a secondary matter, solubility being the more important. Iodoform can be administered in coated pills without any disgust resulting, if the constitutional effects of iodine are desired; while the action of a disinfectant of the alimentary canal may be obtained from the less soluble europhen.

William F. Waugh, M. D.
Ravenswood, Chicago.

STERILIZATION OF IODOFORM.

It has long been considered desirable to discover some practicable method of sterilizing iodoform so as to avoid the possibility of introducing any germs when applying this antiseptic. Since iodoform is decomposed at a temperature much below its melting point, 119 degrees C., heat could not be employed for sterilizing it. The use of corrosive sublimate solution is troublesome, and does not conclusively exclude all possibility of contamination. Luigi Sabbatani, having noted that the decomposition of iodoform did not occur in the absence of oxygen, hit upon the expedient of sterilizing it in an atmosphere of carbon dioxide.—Amer. Drug. Phar. Record.

Iodoform Johnson can be sterilized by either dry or moist heat, not being injured by any temperature under 370 F. It thus possesses great advantage over ordinary Iodoform.

FORMULAS FOR USE OF IODOFORM-JOHNSON.

Iodoform-Johnson can be used in the place of ordinary Iodoform, in all preparations where the latter enters; the solubility, miscibility, reactions and dosage of Iodoform-Johnson being the same as with the ordinary product; the pharmacist has simply to use Iodoform-Johnson in equivalent portions to obtain a preparation identical with that of the ordinary product, except for absence of odor.

The following formulas are given as guides:

IODOFORM-JOHNSON OINTMENT.

(Equivalent of Ungentum Iodoformi U.S.P.)

Iodoform-Johnson in very fine powder, ten grammes.

Benzoated lard, ninety grammes.

Rub the Iodoform-Johnson with the benzoated lard gradually added until they are fully mixed. This preparation should be freshly made.

OINTMENT IODOFORM WITH VASELINE.

(Twenty per cent.)

Iodoform-Johnson .....1 part.
Vaseline .....4 parts.

IODOFORM OINTMENT FOR BURNS.

Iodoform-Johnson .... 1 part
Vaseline .....20 parts

IODOFORMIZED OIL.

Iodoform-Johnson .... 1 part
Olive Oil.....10 parts

Equivalent of the solution of Billroth for use in surgical abscess, etc.

IODOFORM OIL.

(For hypodermic injection.)

Iodoform-Johnson .....5 parts.
Vaseline oil (sterilized) 95 parts

Note: Any of the many similar preparations, may be used in the place of vaseline oil.

IODOFORM COLLODION.

(Equivalent of Collodium Iodoformatum, N. F.)

Iodoform-Johnson, five parts.
Flexible Collodion, ninety-five parts.

Dissolve the Iodoform in the flexible collodion by agitation.

ETHERIAL SOLUTION OF IODOFORM.

Iodoform-Johnson .....1 part.
Ether Sulphuric .....10 parts.

Note: The solution of ordinary iodoform in ether changes color so rapidly that its solution must be made in the dark. On the contrary the solution of Iodoform-Johnson is more slowly affected, thus allowing the manipulation to be made in the light.

Etherial solutions of iodoform should always be protected from light, hence are best stored in amber bottles.

ETHERIAL SOLUTION IODOFORM.

Iodoform- Johnson ....5 parts.
Ether sulphuric .....100 parts.

Equivalent to the solution of Mosetig, Moorhof, etc., for injection in goiter.

IODOFORM ETHER.

(For use in throat and vagina ulceration, etc.)

Iodoform-Johnson .....1 part.
Ether to make .....100 parts.

IODOFORMIZED COLLODIONS.

Iodoform-Johnson ....1 part.
Collodion flexile.....15 parts.

This is modeled after the formula of Moleschott, who recommended its application night and morning as a discutient of swollen glands of the neck and elsewhere, as well as of effusions in the pleura, pericardium, peritoneum and even the arachnoid, and as a curative application to chronically inflamed joints.

In several cases of tubercular meningitis good results were ascribed to the use of this compound, when painted three or four times daily over the nape of the neck, the nastoid pro-

cesses, the temples, and the forehead.

Iodoform-Johnson .....1 part.
Ether Sulphuric .....2 parts.
Collodion Flexile .....7 parts.

This is the equivalent of the mixture of Whitehead, who first used it in the treatment of syphilis.

IODOFORM OIL.

(For inunction.)

Iodoform-Johnson, 5 to 10 parts
Oil sweet almonds to make 100 parts

Any suitable oil such as olive oil, may be substituted for almond oil.

SUPPOSITORIES FOR HEMORRHOIDS.

Iodoform-Johnson ...25 grains.
Cacao butter.....400 grains.
Yellow wax .....50 grains.

Make into twenty-five suppositories.

GLYCEROLE IODOFORM.

Iodoform-Johnson ....26 parts.
Glycerine .....320 parts.

For injections in cold abscesses, etc.

IODOFORM EMULSION, ODORLESS.

Emulsion of iodoform is sometimes prescribed as an injection in certain kinds of fistula, and may be best prepared as follows:

Iodoform-Johnson .....3 parts.
Starch .....1 part.

Triturate in a mortar until a fine powder results, and then add the following mixture:

Glycerin .....20 parts.
Water .....12 parts.

Warm gradually, and stir constantly until 235 F. is reached. The resulting emulsion will be 10 per cent. and is very stable. Moreover, it is found to act more energetically than the emulsion prepared in the ordinary way.

ODORLESS IODOFORM COD LIVER OIL.

The administration of cod liver oil combined with Iodoform-Johnson has been found to be an effective method for the administration of iodine. Being without odor or taste Iodoform-Johnson permits the presentation of a valuable drug—heretofore precluded by its nauseating odor and taste—in a palatable and agreeable form.

Iodoform-Johnson ...80 grains
Cod liver oil.....one part

Guaicol, creosote, etc., may be added as desired; Iodoform-Johnson may be added to emulsions of cod liver oil without changing their palatability.

IODOFORM SPRAY.

Iodoform- Johnson ....1 part.
Balsam Tolu .....2 parts.
Ether sulphuric .....12 parts.

For topical use in diphtheria, or in chronic suppuration of the middle ear, the internal auditory canal; said to excel any other application in diminishing the discharge, correcting the fetor and restoring the part to its normal condition.

IODOFORM-ALCOHOL-GLYCERINE.

Iodoform-Johnson.....1 part
Glycerine .....1 part
Alcohol .....1 part

Equivalent of the mixture of Bruns for injection in tubercular abscess, etc.

IODOFORM COD LIVER OIL.

Iodoform-Johnson ...20 grains
Cod Liver Oil.....1 pint

As Iodoform-Johnson is practically odorless and tasteless it can be administered internally, without producing the slightest tendency to nausea. The above mixture is quite palatable.

On the ground that iodoform is eliminated through the lungs, Bruns proposed its use in the treatment of phthisis. His views have been confirmed by clinical experience.

EXTERNAL THERAPY.

The notes published in this department are mainly those which have been gathered from our correspondence department. They relate more particularly to the external application of remedies. Our correspondence with the medical profession, while extending over the entire globe, is usually limited to the particular products which we manufacture; therefore, these notes cannot be expected to cover the entire field of external Materia Medica.

We shall be glad to receive from any of our readers suggestions upon external therapeutics, and especially details and methods which have been found successful in their own practice.

The notes in the present issue are for the most part compiled from reports and suggestions which have been received, relative to the use of Iodoform-Johnson, Odorless.

Cold Abscess.—Several cases of cold abscess of tubercular origin containing pyogenic membrane are reported as having been completely cured by the use of Johnson's Iodoform: the abscesses being opened with antiseptic precautions, aspiration was used to evacuate the pus, while irrigation was freely practised with a saturated solution of Iodoform in ether. The puncture was afterward sealed with Johnson's Iodoform gauze and collodion.

Venereal Ulcers.—"I have used Iodoform-Johnson in venereal ulcerations; after thoroughly cleansing the ulcers with carbolic solution and a spray (1-100) and afterward dusting them with Iodoform-Johnson."

In suppurating ulcers the following method has been found to be very effective:—The skin for some seven or eight inches about the part is scrubbed with green soap, and washed with ether. A narrow bistouri is inserted into the abscess cavity, and the contents gently expressed. The cavity is then irrigated with warm Iodoform-Johnson ointment (10 parts Johnson Odorless Iodoform, to 90 parts vaseline). This method is especially applicable where there is an appreciable pus cavity.

Cancers.—In cancer, good results may be had from Iodoform-Johnson. The ulcerating surfaces are first cleaned; and this is followed by the application of Iodoform-Johnson.

"In cancer of the uterus I have used with advantage tampons loaded with Johnson's Iodoform, Odorless."

Carbuncle.—A case of carbuncle is reported in which excision was found necessary; after the incision was made, the raw surface was painted with a solution of chloride of zinc (grs. XI—oz. 1); then with carbolic acid, alcohol, methyl violet, each one part, water 10 parts; then dusted with Iodoform-Johnson, Odorless, and packed with gauze.

Chancres.—"I have found a daily irrigation with a solution of corrosive sublimate 1-5000 or 1-1000 followed by the free application of Iodoform-Johnson, Odorless, or an ointment of the same (90 gr. to 1 oz. vaseline) to be followed by rapid cictrization in every case."

Empyema.—In local treatment of empyema after the pus has been removed by incision. The careful introduction in the incision of a roll of Iodoform-Johnson gauze has given better results than irrigation.

Ganglion.—A case of ganglion was treated by washing and disinfecting the skin, followed by an injection of 5 or 6 drops of Iodoform-Johnson dissolved in ether into the cyst; the contents were evacuated and an aseptic dressing and pressure applied. The pain was slight and the cure very rapid.

Gangrene.—"After the removal of the sloughs in moist gangrene, I think Iodoform-Johnson is the most effective dusting powder to promote healthy granulations."

Goitre.—A case of goitre (bronchial) is reported having been treated by injecting hypodermically in different parts of the substance of the tumor, every three to five days, a solution of Iodoform-Johnson in 10 parts of ether and 9 parts of olive oil.

Hemorrhoids.—"I am prescribing with great success, for hemorrhoids, suppositories containing 5 grains each of Iodoform Johnson, and in some cases of impetigo spontaneous recovery follows the use of Iodoform-Johnson ointment."

Syphilitic Sores.—Iodoform-Johnson

is of a great help when mixed in proportion of 2 to 1 with boric acid and applied in syphilis of the nose and naso pharnyx after the sprays. It forms an excellent application also in syphilis of the larynx for superficial ulcerations.

Tuberculosis.—In pulmonary tuberculous, the administration by inunction of Iodoform-Johnson has produced good results. In tuberculosis of the lungs the following ointment has been used:—

Iodoform-Johnson one-half ounce, olive oil and lauolin of each five ounces, applied after the same plan as mercurial inunctions.

Sores.—Iodoform-Johnson has been successfully used for venereal sores and found more useful than ordinary iodoform; like the latter it sometimes has an irritating action in varicose ulcers, but has been found most excellent to dust over the surface of tubercular, syphilitic, scrofulous and gangrenous ulcers.

For small-pox the following has been suggested: Iodoform-Johnson oz.i in collodion one ounce; paint on small-pox pustules frequently, to hasten the drying and prevent the extension of pustulation.

215 Jefferson Avenue.
Brooklyn, N.Y.

Dear Sirs—
The sample of Iodoform Johnson came duly to hand and was used with perfect satisfaction.
Yours truly
Frank S Mulbury

Kalamo, Mich., Nov. 22, 1899.
Messrs. Johnson & Johnson:
Kind Sirs—Your sample of Iodoform Johnson gave utmost satisfaction. I use your Absorbent Cotton and Moist Gauze.
Thanking you for your courtesy in the past, I remain Respectfully,
F. L. Snell, M. D.

Utica, N Y., Nov. 22, 1899.
Johnson & Johnson:
Gentlemen—I will state that I have used the Iodoform Johnson and find it to be all that you claim for it. I have used it in contused wounds that have been filled with coal dust, etc.; in such cases it is almost impossible to prevent suppuration, but I have succeeded in doing so by using modern methods as to cleaning and dusting the parts thoroughly with Iodoform Johnson.
Respectfully yours,
E. J. Stephens, M. D.

Chicago, Ill., Nov. 23, 1899.
Messrs. Johnson & Johnson:
Gentlemen—I have tested the Iodoform Johnson in suitable cases of minor surgery, and, so far as I can determine, its effects are fully equal to those of the ordinary iodoform. In a case presenting septic and exhuberant granulations I was surprised at the rapidity of cicatrization.
This odorless iodoform promises to be a perfect substitute for the ordinary iodoform, though it may require more time and a large number of clinical tests to settle the question beyond doubt.
Yours very truly,
Dr. E. J. Mellish.

Syracuse, N. Y., Nov. 17, 1899.
Johnson & Johnson:
In regard to Iodoform Johnson, I will say I was very much pleased with the results of sample which I used in the treatment of an abscess of the breast, which came under my care about the time I received the sample.
Please accept thanks for same.
Yours very respectfully,
Dr. C. H. Ransom.

Fair View Sanitarium,
Eddington, Pa., Nov. 17, 1899.
Messrs. Johnson & Johnson,
New Brunswick, N. J.:
Gentlemen—I have been reading with much interest "Red Cross Notes," the first of which has come under my notice this week. I shall be pleased to receive the publication regularly. If not asking too much, I shall also be pleased to receive a copy of "A Study in Dyspepsia" and "Rules and Suggestions," together with a sample of Odorless Iodoform and Lintine, as I am a thorough advocate of iodoform, using large quantities in my private hospital and two large institutions.
I may say I am a frequent user of your cotton and Belladonna Plasters.
Yours truly, G. H. Stroup.

Des Moines, Ia., Nov. 30, 1899.
Johnson & Johnson:
Gentlemen — Your sample of Iodoform Johnson, Odorless, does all you claim for it.
Yours truly,
J. W. H. Vest, M. D.

St. Louis, Mo., Dec. 1, 1899.
Messrs. Johnson & Johnson:
Gentlemen—Replying to your favor November 23. The sample of Iodoform duly received and proved most satisfactory.
Yours truly,
Willis Young, M. D.

Augusta, Ga.
Johnson & Johnson,
New Brunswick, N. J.:
Gentlemen—In answer to your inquiry as to "Odorless Iodoform," let me thank you for the sample and say I am sure it will supersede the old Iodoform.
Kindly send me "Red Cross Notes" care of Medical College of Georgia, instead of Seneca P. O., and oblige,
Yours truly,
R. E. Mason, Jr.

A NOTE ON DIASTASE.

Human saliva, also the pancreatic secretion and the intestinal juice, contains a peculiar ferment, which in each is probably identical and which posseses the remarkable property of converting starch into sugar. This is a very important function of digestion, since by this change insoluble starch is made to assume a soluble form by which it becomes ready for absorption and assimilation. For a long while it was supposed that, in this amyolytic process, the starch became first transformed into dextrine, and by continued action of the ferment then became changed into sugar, but it was shown by Musculus and von Mering that dextrine and dextrose were formed simultaneously. It has also been discovered that there are at least two kinds of dextrine, one being colored red by iodine (erythrodextrin), the other not (achroodextrin). The chief product of the action of the salivary ferment, or ptyalin (or animal disastase), however, is apparently not dextrose but maltose.

The reaction is probably not identical at different temperatures, but may be represented in this manner:

$$5\ C_6\ H_{10}\ O_5 + 3\ H_2O \left\{ \begin{array}{ll} 2\ C_6\ H_{10}\ O_5 & \text{Dextrin.} \\ C_6\ H_{12}\ O_6 & \text{Dextrose (grape sugar).} \\ C_{12}\ H_{22}\ O_{11} + H_2\ O & \text{Maltose (malt sugar).} \end{array} \right.$$

The saliva of the lower animals also possesses this amyolitic power, but to a variable extent and to a less degree than does that furnished by the salivary glands of the human subject.

Ptyalin has never been isolated, but may be obtained in a state sufficiently pure by acidulating the saliva with orthophosphoric acid and then adding enough lime water to render the liquid alkaline. Calcium phosphate is thrown down and carries with it the ptyalin, together with albuminous substances; the precipitate is collected on a filter and washed with a little water, which dissolves out the ptyalin. On the addition of alcohol to the filtered liquid the ptyalin is precipitated in light white flakes, which are converted into a yellowish powder when dried in a vacuum. This may be further purified by dissolving it in water and again precipitating by alcohol. After several repetitions of this process, the resulting nearly pure ptyalin is now in the form of an almost white powder and burns without leaving a mineral residue.

A solution of ptyalin in water possesses the same power of converting starch into sugar that the salivary pancreatic, and salivary secretions have. The starch cells of our food are usually enclosed in a membrane that resists the action of the digestive fluids in its raw state, but when boiled with water so that the envelope of the starch cells bursts, it is found that the action of chemical transformation into sugar will go on very rapidly in the presence of the secretions containing ptyalin.

As the greater proportion of our daily food is vegetable and contains a large amount of starch, it is obvious that starch digestion is an important function of the digestive tract. On account of the presence in the stomach of air born bacteria of fermentation it often occurs, on account of some delay in the digestive process, that the starchy foods will ferment in the stomach and intestines and produce acetic and other acids as well as various forms of gases, causing flatulence and pain.

When symptoms of indigestion of starchy food are present and there is evident deficiency of the active principle of the saliva, we may use measures to cause an increased flow of saliva either by directing the patient to masticate his food more thoroughly, or he may accomplish to some extent the desired purpose by the popular but vulgar chewing-gum. It has been found, however, that the same result may be more surely attained by the administration of a ferment obtained from malted grain, known as diastase (an agent having the same general characters as ptyalin and probably identical with it). (Cantara. Archiv. Generales, 1870, p. 501).

After a meal containing starchy food it has been repeatedly observed that the usual evidences of indigestion—the weight in the stomach, the swollen condition of the abdomen, the belching of wind, and the nervous depression—may be overcome by the administration of the active purified diastase. Although it has been found that this agent is most efficient in a weak

alkaline solution at the temperature of the interior of the body, and its action is arrested by a weak acid reaction of the solution, yet clinical experience has shown that starchy indigestion due to indulgence in pastry or other starchy food is promptly relieved by a few grains of diastase in powder or solution.

In cases of intestinal indigestion, that are so common in this country, both among children and adults, the diastase is particularly useful. In this class of patients it should be given in capsules, and about two hours after meals, or at the time that the food is passing into the intestines and the discomfort is generally experienced by the patient.

Malt and its preparations contain a variable proportion of diastase, some of those now supplied by manufacturers being much richer in this important constituent than others. Some of these preparations are syrupy, others are weakly alcoholic and resemble beer or porter. Of late years both forms have been largely employed in medicine, their popularity proving the necessity existing in the community for remedies which assist starch digestion. For many reasons: convenience of administration, accuracy of dosage, freedom from other substances, etc., it was for years a desideratum to obtain the active principle of malt in a pure form, which was diligently but vainly sought after. However, in the advance of manufacturing pharmacy, means finally have been devised for separating diastase in its purest and most active form as a white, tasteless, almost impalpable powder well adapted for therapeutic use.

One of the Aseptic rooms, Johnson & Johnson Laboratories.

RED CROSS NOTES

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A Study of Germs

SERIES TWO NUMBER ELEVEN

JOHNSON & JOHNSON, NEW BRUNSWICK, NEW JERSEY

GERMLESS CATGUT

CHICAGO
BAPTIST HOSPITAL
Rhodes Avenue and 34th Street
Tel. S. 1187.

Chicago, Dec 8 1899

Mr Eugene Ross
197 E. Randolph St.
Chicago

Dear Sir: In requested to report one of the many favorable cases in which Red Cross Catgut has been used.

Patient: Male 20 yrs. Old. admitted to the hospital with diagnosis of Appendicitis. The usual operation was performed and red cross catgut used both to bury the stump and to close the Abdominal incision. The patient made an uneventful recovery. the wound healing in a most favorable way without any pus formation as sometimes occurs with other kinds of catgut Red cross brand has certainly given satisfactory results wherever it has been used.

Yrs Truly
E. E. Olivers M.D.

RED CROSS NOTES.

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SERIES II, No. 11. NEW BRUNSWICK, N. J. 1900.

A STUDY OF GERMS.

The science of bacteriology enters into such intimate relations with the preparation, sale and use of modern surgical dressings that a knowledge of the subject is indispensable to all concerned therein.

The studies given in this number of Red Cross notes consist for the most part of an abridgment of a series of studies originally devised for use in various operations of the Johnson & Johnson Aseptic Laboratories. It is to be understood that the present observations are quite elementary, the original conception being a sketch for the guidance of beginners. It is willingly conceded that a subject so extensive and complex cannot be comprehensively treated in a few pages.

Numerous applications having been made for copies of these studies in their original form, it has been deemed advisable to combine their salient features with some original observations taken from the every day work in the Johnson & Johnson bacteriological department.

Prominent features of the study of germs as here presented are the definitions and leading principles of modern Bacteriology briefly explained in plain language: Accurate illustrations of the most common forms of germ life: A reproduction in natural colors of cultures of well known bacteria: Reproduction of microscopic slides showing the exact appearance of these minute organisms separately and in colonies. It is hoped that from the data thus given, the reader may be able to acquire and formulate some idea of germs and germ life.

WHAT ARE BACTERIA?

Bacteria comprise a small class of plants of a low order.

They are one-celled plants; that is, instead of being built up of many cells into a complex organism like the plants we commonly see, these little plants have but a single cell, each cell being a complete plant in itself. They have a definite form, are translucent. In their multiplication one cell divides and produces two. Each of these divides and both together produce four, all of which are distinct plants.

The yeast plant and certain moulds are closely related to bacteria, and in the study of bacteria it is helpful to associate them. The yeast plant, however, increases by budding, a parent cell putting off a daughter cell, smaller than the parent cell. In moulds the growth is like that of twigs with the formation of thread-like shoots.

FORMS OF BACTERIA.

Bacteria have simple shapes. Of the hundred or more species studied, only three general forms have been described. These forms may be compared to billiard balls, lead pencils, and corkscrews. We may, then, say that spheres, rods, and spirals comprise all types of bacteria.

First, a rod-shaped cell named the bacillus (plural, bacilli); little translucent rods with rounded, tapering or square ends, the length of which is from two to ten times its thickness.

A second form is the micrococcus (plural, micrococci) which, as its name implies, is spherical, or ball shaped. The micrococci cells are not always perfectly spherical. They may be compressed into the shape of a biscuit, cube or an imperfect cube, or a cube with pointed sides. The third form is the spiral screw-shaped cell, known as spirilla (singular, spirillum). When this screw-shaped organism is made up of segments, each segment constituting one curve of the spiral and forming by itself a complete organization, it is called a vibrio.

STRUCTURE OF BACTERIA.

Bacteria are so exceedingly simple in structure that it is hard to go beyond their external forms. They have certain locomotor organs (flagella), and a sort of skin consisting of a cell wall or membrane which encloses a transparent half-fluid material called proto-plasm (proto-plasm exists in all living cells, either animal or vegetable, and is known as the living substance). This cell wall sheath of bacteria, which in some instances resembles woody fibre (cellulose), has peculiar powers against the action of external agents and is an important factor to be considered in efforts for the destruction of bacteria. The cell wall of certain species will resist strong chemicals, high degrees of heat, and low degrees of cold. Others have little power of resistance. Outside of the cell membrane a gelatinous envelope or capsule sometimes appears, which causes the cells to adhere to each other in masses. This gelatinous secretion will sometimes cement masses of bacteria into clusters (zooglea) which may float on the top of the liquid in which they grow, or may sink to the bottom.

The general appearance of bacterial clusters or masses is one of the important means for distinguishing the different species when growing in a solid media, such as a nutritive gelatine. The different species have each a special method of spreading from their central point of origin or nidus. In this way a single bacterium in a culture jelly will feed upon it and reproduce rapidly; the descendants will cluster together in masses called colonies. The shape of these colonies, which is quite constant in the same species, enables the bacteriologist to distinguish the different species with the naked eye.

SIZES OF BACTERIA.

They are much the smallest living organism known, a single structure being invisible to the naked eye.

The standard adopted for the measurement of these micro-organisms is the micro-millimetre, or the thousandth part of a millimetre, called a Micron and equaling about one twenty-five thousandth of an inch. A bacillus may vary in length from 1 to 10 Microns—the symbol of which is the Greek letter Mu. A drop of water would hold many hundred thousand such organisms. The spherical bacteria or micrococci have a diameter varying from 1 M. to 2 M.

In order to give a faint conception of the meaning of these measurements it is suggested to students that they make the following experiment

Make of putty or some other soft substance a ball or sphere with a diameter of about one twenty-fifth of an inch. It will take a chain of one thousand of the largest micrococci to reach across the diameter of this sphere. If we were to compare the size of one of the larger micrococci with this sphere, it would be found that our sphere is 524,000,000 times the larger. Take a milligramme weight, comprehend its value and conceive that in this weight of a pure culture of one of the species of micrococci, which cause pus in wounds, 8,000,000,000 organisms have been counted.

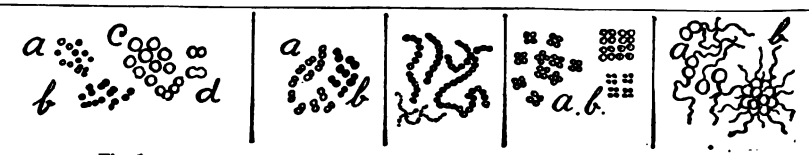


Fig. 1 Fig. 2 Fig. 3 Fig. 4 Fig. 5

Fig. 1.—*Micrococci*; small at *a*, large at *c*; in stages of division at *d*; stained at *b*. Fig. 2.—*Diplococci*; *a*, unstained; *b*, stained. Fig. 3.—*Streptococci*. Fig. 4.—Tetrads of *Tetracoccus*; *a*, first power; *b*, second power. Fig. 5.—*Cocci* with flagella or cilia; *a*, single cocci dividing; *b*, mulberry group of ciliated cocci.

GROWTH OF BACTERIA.

Bacteria, like other plants, require certain conditions for growth:

a. Moisture sufficient for solution of their food.

b. Temperature favorable to growth.

c. Supplies of suitable food.

Wheat requires for growth similar factors. In poor soil the grain sprouts and withers away. In dry soil it may not sprout at all. If the temperature is low it scarcely grows. Some fields

will produce fifty bushels or more of wheat to the acre, other fields do not return what was planted. In fields where wheat will not grow other plants may thrive. So it is with bacteria. Some will grow well in a soil where others will not grow or even live. Each species requires a soil which is best adapted to that species.

A knowledge of the conditions favorable and unfavorable to bacterial life and growth is the basis of the practice of antisepsis and asepsis, of sanitation, disinfection, etc. Water is essential for the development of bacteria. They may remain alive for months in a dry condition, but without growth. Spores may lie dormant for years without moisture, but bacteria will not generate unless sufficient moisture is present. The food of bacteria must contain nitrogen. Some bacteria (aerobic) require the free oxygen of the air for development, others (anaerobic) will not grow in the presence of the oxygen of the air.

For every species of bacteria there is a most favorable temperature point, whether low, medium or high. That is, there is a point so low that certain species cease to grow, there is a point so high that they will not develop, and between these extremes there is a point where each species will flourish best. Some bacteria grow in a slightly acid medium, but in general a neutral or slightly alakine medium is more favorable.

REPRODUCTION.

The mode of reproduction common to all bacteria when in the growing condition is by fission. Many species multiply only in the following way: Under proper conditions the cells grow in length, a constriction occurs in the middle which grows deeper and deeper, until the cell is completely divided and separates in two individuals. These two again divide in the same way, making four, and so on, each repeating the process.

When in their resting stage bacteria transmit life by a process known as sporulation. This may be considered as representing the fruiting of higher plant life. The spore is a one celled seed that forms within the cell, growing at the expense of the living substance of the parent cell. In time the parent cell disappears and the spore is set free. These spores contain the seed of life; they are invested with a thick membrane; they retain their vitality when dried, and they offer greater resistance to heat and chemical agents than did the parent cell. When spores are introduced into suitable soil they develop again into bacteria of the same kind as the original.

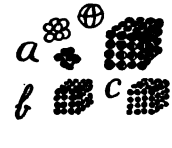


Fig. 6

Fig. 7

Fig. 8

Fig. 9

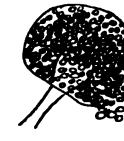


Fig. 10

Fig. 6—*Sarcinæ*; *a*, first power; *b*, *c*, second power. Fig. 7.—*Staphylococci*; *a*, "islands" of larger cocci; *b*, small cocci. Fig. 8.—*Zooglœa* slime or scum; highly magnified, showing that it is made up of various sorts of bacteria imbedded in a jelly-like substance. Fig. 9.—Cocci chains of *Leuconostic*, showing *arthrospores*, the enlarged cocci of the chain. Fig. 10.—Spore-bearing case at head of Mucor, a black mould; spores are escaping from a rupture of the wall.

In their reproduction and development some bacteria always remain distinct from others of their kind: some, again unite in pairs end to end; and others, yet again, form long threads or rows end to end. The micrococci are arranged alone, in pairs, and in characteristic groups. The following classification is in accordance with such fission grouping:

1. Bacilli:
   a. Threads—bacilli united end to end in a row.
   b. Cladothrix—united in a branch like formation.
2. Micrococci.
   a. Diplococci—micrococci arranged in pairs.
   b. Tetrads—micrococci arranged in fours.
   c. Sarcines—micrococci arranged in cubes.
   d. Streptococci—micrococci arranged in chains.
   e. Stapylococci—micrococci arranged in heaps.

RAPIDITY OF REPRODUCTION.

Under suitable conditions multiplication is very rapid. (In some species a division occurs every twenty minutes.)

The calculation of the increase of bacteria in a geometrical ratio is interesting. Thus, assuming that all conditions are favorable and allowing for a division every half hour.

At the beginning there is one bacilli.

At the end of the first half hour there will be two bacilli.

At the end of second half hour there will be four bacilli.

At the end of the third half hour there will be eight bacilli.

At the end of the fourth half hour there will be sixteen bacilli.

At the end of of the fifth half hour there will be thirty-two bacilli.

At the end of the sixth half hour there will be sixty-four bacilli.

At the end of the seventh half hour there will be one hundred and twenty-eight bacilli.

"The rapidity of multiplication depends on so many circumstances of heat and food-supply that actually in nature it is only in circumscribed places and for brief intervals that germs multiply according to theory. Germs die rapidly when starved, and in the laboratory, germs cannot be kept alive or at least in their full powers except by frequent supplies of fresh food. It is, therefore, no wonder that there are so many of these germs. If there is a chance for one to get into a fresh food-supply, millions of fellows and scores of species accompany it, so that the food in question is quickly spoiled. The earth is as full of germs as it can be, and doubtless this has been the case from the beginning. We cannot hope to exterminate them. We can only hold them back for a short time from limited areas and particular objects. In the long run we may possibly exterminate particular species just as we have particular species of the higher animals. But it cannot happen until the knowledge of bacteriology and the desire to co-operate for such a purpose becomes universal."

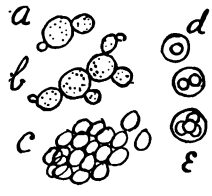


Fig. 11

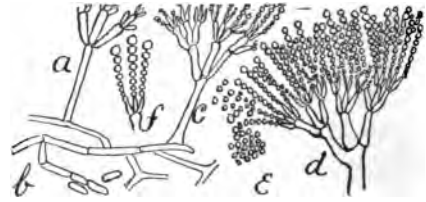


Fig. 12

Fig. 13

Fig. 11.—Yeast cells; *a*, one mother cell, with a large and a small bud; *b*, group produced by budding; *c*, group of separated and mature cells; *d*, *e*, formation of *endospores*. Fig. 12.—Some spore-bearing branches of Penicillium, the blue-green mould; *a*, *c*, *d*, upright aerial branches, carrying twigs that produce the spores in rows, the oldest being at the outer end; *e*, loose spores; *b*, root-like branches, that separate off yeast-like cells; *f*, spores more highly magnified. Fig. 13.—Thread-like or *Leptothrix* form of bacilli.

This is three hours and one-half from the beginning of the multiplication. At the end of the tenth hour, following out the same ratio of increase, there will be one million one hundred and seventy-six thousand five hundred and seventy-six. Keeping the same ratio of increase let the reader continue the calculation up to twenty-four, to forty-eight hours or for a full week.

It has been calculated that under certain conditions one single bacteria in three days could produce 47,000,000,000,000 descendants weighing 16,000,000 pounds.

While these figures show that in dealing with bacteria we have to do with forces of almost infinite power, they are not actual or possible figures. Long before the offspring of a single microbe reaches many millions the rate of multiplication is checked for want of food or by the excretion of their own products which impedes development or destroys them. Dr. Nelson says:

MOTIONS OF BACTERIA.

It is well to keep the fact clearly in mind that bacteria do not move like insects, by flying, crawling or walking. For the most part they are moved about by currents of water or wind, or by adhering to some moving object. There are some varieties of microbes, however, that possess organs of locomotion. These organs are thread-like appendages called flagella, which are apparently propelled by a power of some kind within the cell wall of the microbe. The spirilla rotate as they move, and by the twirling movement of their flagella the straight rods are rotated on their axes. In certain species—as in typhoid and colic germs—a bundle of cilia is found at each end of the structure extending along the sides and ends, and suggesting in appearance the legs of a centipede.

CULTIVATION OF BACTERIA.

The usual methods of cultivating bacteria are, in brief, as follows: A nutrient soil is prepared consisting, say, of gelatine, extract of beef, meat peptone, with the addition of certain salts. This soil is made neutral, slightly acid or alkaline, as may be required. After clarification and filtering it is made absolutely sterile by boiling; it is then poured into dishes or test tubes, which have also been carefully sterilized. If put in test tubes these are stoppered with non-absorbent cotton (this acts as a filter admitting air, but excluding germs). Having found on

DISTRIBUTION OF BACTERIA.

Bacteria exist almost everywhere on the surface of the earth. No other plants or animals are so universally found in nature.

Three of the important media for the distribution of bacteria may be stated as air, soil and water. The air is not a natural home for bacteria, but has a measure of warmth and organic matter; thus bacteria may retain life in the atmosphere. The air, especially when in circulation, is a great medium for their distribution. Dust which arises from the street is laden with the dried and pulverized sputa of persons afflicted with infectious diseases or made up of offal from animals; thus a multitude of bacteria are dissemi-

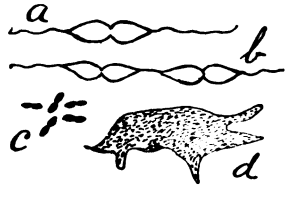


Fig. 14

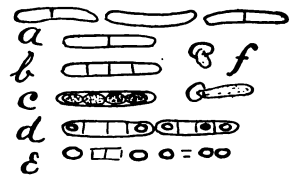


Fig. 15

Fig. 16

Fig. 14.—*Bacterium termo* or *Proteous vulgaris*, the common germs of putrefaction; *b*, division proceeding, the two offspring still united by what will become flagella for each; *c*, stained specimens, less highly magnified, the flagella not visible; *d*, an "island" of such bacteria magnified 250 times. Fig. 15.—*Bacillus megatherium*; *a*, *b*, vegating form in process of division; *c*, preparing to form spores; *d*, *e*, spores formed and set free; *f*, new vegetative rod formed by germination of a spore. Fig. 16.—*Vibrios*; *a*, vegetating motile forms, the flagella showing on two of the cells; *b*, spores formed at one end.

trial that each dish or tube contains no germs, also that germs will grow in the kind of soil provided, we proceed to inoculate the prepared soil with the kind of germs we desire to cultivate or study. This must be performed with proper care to exclude air germs, etc. We next place the inoculated tube in a chamber called an incubator or culture chamber, where a uniform and proper temperature is maintained for three or more days. If our experiment is successful we shall then find that germs thus introduced into favorable soil will grow and produce characteristic colonies that are visible to the naked eye. Under these same methods germs can be counted, isolated and studied. By the presence or absence of germs, the germ-destroying power of antiseptics, sterilization can be tested and proven.

nated through the air. Sweepings from stores, stables, etc., when scattered through the air, provide fertile soil for bacterial life. Warerooms where rags, skins, etc., are handled, spread anthrax and cholera germs. The winds and currents of the air carry these fine particles and scatter bacterial life all over the land.

In a room in which people have been moving, which has just been swept or where clothing has been brushed, close the blinds or draw the curtains allowing a ray of sunshine to pass through a small opening. Across the path traveled by this ray of light, millions upon millions of small particles of fine dust may be seen in motion.

It is apparent bacteria may readily and constantly be taken up by and float in the air, whence they always gravitate to the ground, causing great danger in treating wounds, or in preparing surgical dressings exposed to a dust laden atmosphere.

Take a piece of perfectly clean cloth, a bit of clean absorbent cotton or gauze, wipe off a table, counter or bench and note the visible collection of dust or debris, even from objects supposed to be clean. Bacteria are invisible to the naked eye, therefore, dust and other matter may contain many thousands which yet are unseen. While infection to wounds from air germs is not feared as much as formerly, it is an important factor, especially when we consider the condition of the air of infected hospital wards, crowded rooms, etc.

Sternberg's Manual of Bacteriology gives a list of nearly 40 species of bacteria found to be present in air, among them several species which are associated with wound infection.

No surgeon would be justified in operating in a room the air of which contains dust and dirt, nor in a room that has just been swept.

In the Aseptic Laboratories of Johnson & Johnson extraordinary measures are taken to secure freedom from dust—

By isolation of buildings and rooms.

By fitting up rooms whose walls, floors and furniture cannot harbor dust.

By using scientific precautions at every avenue through which dust may be carried into the rooms where surgical dressings are prepared.

Water is the natural home of bacteria, the number and kind present depending upon the source from which the water is obtained. Water of exceptional purity is often apparently free from germ life. The water from the ocean, rivers and many streams will invariably be found to contain germs. Water from stagnant, shallow pools or sluggish streams, or water into which sewage flows may contain millions in each cubic centimetre.

In Sternberg's Manual of Bacteriology 122 species of bacteria are noted as being found in water, among them being 20 species that are disease-producing, including three species that produce pus in wounds.

These observations show the necessity for using pure water in surgical operations, for washing instruments, hands, etc. In preparing surgical dressings the necessity for using pure water is self-evident. In Johnson & Johnson's laboratories this requirement is met by the purification of all the water used (about 250,000 gallons per day) by coagulation and precipitation, and by filtration. The water used in preparing solutions is always boiled, as is also the water used by the operatives in Asepsis, for cleansing hands and apparatus.

Of great moment to the physician, to the surgeon, also to the maker of surgical dressings, is the consideration of the agency of the human body in the distribution of bacterial life.

Sternberg's Manual of Bacteriology enumerates 24 species of bacteria that have been found on the surface of the human body in normal health, eight of which species were disease-producing and of the latter three were pus-producing. The same authority enumerates 15 species in the nasal secretions; (eight disease-producing) from the secretions of the mouth; 72 species (20 disease-producing) all from persons in ordinary health; in diseased conditions, catarrh, cold, etc., particularly in persons of uncleanly habits, these numbers would be many times multiplied in kind and number and with great rapidity.

The bacteria of the body are transferred to the clothing; hence in the surgical operating room, contact of the hands or of the clothing of the operator with a wound, would mean the transference and implanting of bacteria.

The same rule holds good with the preparation of surgical dressings: For infecting germs will be transferred to the dressing material from the hands or clothing of the operators, unless efficient means are provided to prevent the transference. We now see the truth of Lister's crude statement: "On all objects of the external world, septic (poisonous) dust is present. On the skin of the patient, on the hands of the operator and of his assistants, in the air, water, etc."

Vernon, Texas, Feb. 13th, 1900.

Johnson & Johnson:

Dear Sirs—I am well pleased with your "Red Cross Notes." I am well pleased with all your preparations that I have used.

Yours truly,
J. E. DODSON.

Johnson & Johnson:

While in a friend's office the other day, I was shown for the first time your "Red Cross Notes." If it is not asking too much, will you be so kind as to place my name on your mailing list to receive the "Notes" as well as your other literature?

Yours respectfully,
DR. JAS. C. SIMPSON.
Montreal, Canada.

Johnson & Johnson:

Gentlemen—"Red Cross Notes" are essentially a valuable and attractive addition. I welcome their arrival with pleasure at all times. Your preparations are the only kind I use or can depend upon. Please place my name upon your list.

Very respectfully,
J. H. VANKLEECK, M. D.
Brooklyn, N. Y.

WOUND INFECTING BACTERIA.

Of the bacteria which cause trouble by infecting wounds the pyogenic or pus-forming organisms are the most important, not because they produce the most disastrous results, this is frequently not the case, but because they are the cause of the great majority of wound infections. Many bacteria will produce pus under favorable conditions, but those which are prominently associated with the idea of pus formation are the pyogenic staphylococci and the Streptococcus pyogenes. Other pathogenic bacteria may and frequently do infect wounds either at the time the wound is made or subsequently.

The Staphylococcus pyogenes aureus is by far the most important because the most common wound infecting organism. It is widely distributed, being normally found on the surface of the skin and mucous membranes of the human body, in the air and dust of inhabited apartments, and occasionally in water and soil. It occurs as spherical cells, arranged singly or in irregular groups. Its size varies slightly but the cells are usually somewhat under one thousandth of a millimeter in diameter. The micrococcus grows readily on the various culture media producing a golden yellow pigment, hence its name. It occurs frequently in furuncles, abscesses, carbuncles, and ulcerative conditions of the mucous membranes, also in internal suppurative conditions such as malignant endocarditis, appendiceal abscess, etc. Its causative relation to suppuration has been repeatedly demonstrated on man and animals.

Staphylococcus pyogenes albus is also a widely distributed micrococcus. It occurs constantly on the healthy skin. In fact the Staphylococcus epidermidis albus of Welch, which is probably an attenuated variety of this micrococcus, is invariably to be found not only on the surface of the skin, but also some distance beneath it, so that superficial disinfection fails to reach and destroy it. Morphologically the S. p. albus is indistinguishable from the aureus. It resembles it also in almost all its biological characteristics except that it produces no pigment. It occurs associated with other pyogenic cocci and infrequently alone in abscesses an various suppurative diseases. It is not as virulent as the aureus.

Staphylococcus pyogenes citreus is a less frequently found and much less pathogenic member of this group. It differs from them in producing a lemon yellow pigment on culture media.

Next in importance to the Staphylococci is the Streptococcus pyogenes, discovered by Fehleisen. It has been found on the healthy skin and mucous membranes and in rooms where infected patients have been, but it is probably a strict parasite, multiplying only within the animal body. It occurs as small cocci, somewhat irregular in size and arranged in chains, frequently containing many elements. It grows somewhat slowly on the ordinary culture media of the laboratory. It is frequently associated with the Staphylococci in acute abscesses and is the cause of erysipelas. It may produce severe local effects when inoculated into a wound, or even a general infection or pyemia resulting in death. It sometimes occurs associated with the diphtheria bacillus in the throat and its presence causes that disease to assume a much more serious aspect. It is also the usual cause of puerperal fever.

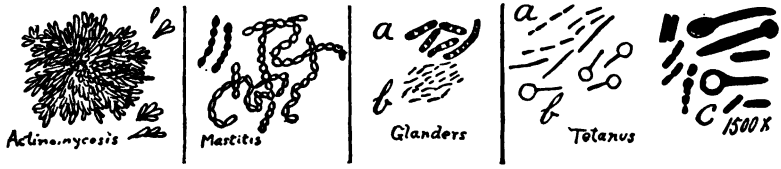


Fig. 25 Fig. 26 Fig. 27 Fig. 28

Fig. 25.—*Actinomyces.* Fungus of "lumpy jaw" of cattle. Fig. 26.—Streptococcus of mastitis, a form of garget. Fig. 27.—*Bacillus mallei*, germ of glanders; *a*, highly magnified; *b*, magnified about 600 x. Fig. 28—*Bacillus of tetanus* (lockjaw); *a*, vegetating forms; *b*, spore-bearing rods; *c*, from a camera-lucida drawing by Julius Nelson, Ph. D.

Associated with these organisms is sometimes another, the Bacillus pyocaneus of Gessard. This is a widely distributed saprophyte, having been found in water, soil, and on the skin of healthy persons. It is a slender bacillus with rounded ends, frequently occurring in pairs or chains. It grows readily on the ordinary culture media forming a beautiful green pigment. No spores are formed. In man this bacillus is seldom the cause of disease, although cases of general infection followed by death have been reported. When associated with the pyogenic cocci in wounds, however, it greatly delays the process of repair and may give rise to general symptoms due to the absorption of the toxic products it secretes. It is highly pathogenic to some of the lower animals.

Bacillus tetani. This bacillus is very widely distributed throughout the soil and occurs in the intestinal discharges of herbivorous animals. The bacillus is a short rod, sometimes swollen at the end, the swollen portion containing a round spore. It is a strict anaerobe, that is it will not grow when free oxygen is present. When this is excluded it grows at ordinary temperatures or at 37 C. The bacillus when introduced into an open wound may not develop on account of the presence of free oxygen. When inoculated subcutaneously it produces the characteristic symptoms and usually death results. The bacillus does not form pus, but its growth seems to be favored by the presence of pus-forming bacteria in the wound. It does not become distributed throughout the body,

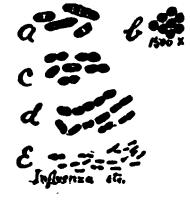


Fig. 29

Fig. 30

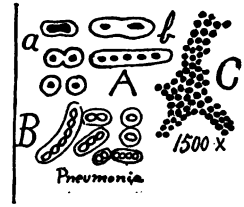


Fig. 31

Fig. 29.—*a*, (modified from Sternberg after Baumgarten) *Bacillus of septicæmia*; *b*, *Micrococcus of septicæmia*, from camera-lucida drawing by Dr. Julius Nelson. Fig. 30.—Germs of diphtheria (Klebs-Loeffler *bacillus*), from a camera-lucida drawing by Dr. Julius Nelson. Fig. 31.—A. Friedlander's *Pneumococcus*, showing t e capsules; *a*, dividing with division of the capsule; *b*, division within the capsule. B, Fraenkel's *Pneumococcus*, germ of cropous pneumonia, capsulated form. C, same in "islands," drawn by Dr. Julius Nelson from a preparation from a culture.

These are the most common wound infecting species, but there are many others which cause serious or fatal results when inoculated into the healthy individual The more important of these will be described.

Bacillus diphtheriae. This bacillus, the cause of diphtheria, usually infects the mucous membrane of the throat or nose, occasionally, however, an external wound becomes infected producing the constitutional symptoms due to the absorption of the specific toxin produced by the bacillus. The microbe is characteristic in appearance, having a tendency to grow in irregular forms, and stains irregularly with aniline dyes. It does not form spores. It grows well on ordinary culture media at 37 C., very slowly at room temperature. Milk is a favorable culture medium for this bacillus and epidemics have been traced to contamination of the milk supply,

but can only be found at or near the seat of inoculation. The symptoms are due to a very potent toxin which it produces.

Bacillus anthracis. This is the cause of anthrax, a disease which is rare in man in this country. The bacilli are rather large, square ended, and occur in long chains. Very resistant spores are formed under favorable conditions. The organism grows readily in the ordinary culture media. Human beings are usually infected by handling hides of animals or the wool of infected sheep which contain the spores, and the favorite location of the pustule produced is on the head or shoulders. Sometimes the bacilli gain entrance through the lungs. They may be demonstrated in the pus and after death in the blood and all the organs of the body.

Bacillus mallei. This is the cause of the disease known as glanders, which

occurs chiefly in horses and asses. It is a small bacillus which grows in the ordinary culture media at 37 C., especially if the medium is somewhat acid. It is always transmitted to man from the lower animals and usually through superficial wounds in the skin or acillus mucous membrane. The disease is exceedingly fatal to man.

B. pestis bubonicae. This bacillus is the cause of the Bubonic plague, a disease as yet unknown in this country, but epidemic in many other parts of the world. In localities where the disease occurs the bacillus seem to be widely distributed. The organism grows readily on culture media and does not form spores. It is disseminated by direct infection from man to man, by means of the lower animals and by ingestion or inhalation of the germ. The fatal accidents which have occurred to persons handling the germ in various laboratories demonstrate conclusively its power to infect atomical tubercles are caused in this way.

These are the most important wound infecting bacteria. Others that have been known to act in this way are, Bacillus oedematis maligni, Bacillus aerogenes capuslatus, Pneumococcus, Actinomyces, etc. Besides the diseases described above there are two others, the bacteriology of which is yet uncertain, but which can undoubtedly be transmitted by wound infection, and these are syphilis and rabies. Several organisms have at various times been described as being the cause of syphilis, and the one which has the most claim to that distinction is the bacillus of Lustgarten, which morphologically and in its staining reactions resembles the tubercle bacillus. It occurs in the diseased areas in large numbers but all attempts to cultivate it have failed.

Nothing is definitely known about the bacteriology of Rabies.

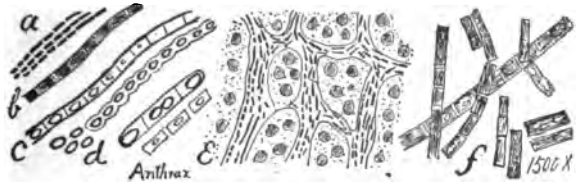


Fig. 32.

Fig. 32.—Bacillus of anthrax; *a*, parallel-jointed filaments from a culture; *b*, more highly magnified; *c*, forming spores; *d*, spores complete and being freed; *e*, section of liver showing invasion by anthrax germs; *f*, drawn by Dr. Julius N. Ison from a strained preparation.

wounds. It is a vigorous pus producer.

Gonococcus.—This micrococcus is the cause of gonorrhea and is essentially parasitic in its nature, never growing except in the living organism. It grows feebly on culture media. It infects only mucous surfaces, the usual point of infection being the urethra. It occasionally causes a dangerous form of ophthalmia and may, under favorable conditions, produce peritonitis and other suppurative lesions. It also is a pus producer.

Bacillus Tuberculosis.—This organism is a strict parasite, multiplying only in the body of living animals. It grows slowly on culture media containing glycerine at 37 C. Wound infections from this bacillus are rare, but occasionally occur. Definite lesions of the skin have been produced by inoculation with it. The so-called an-

READING COURSE IN BACTERIOLOGY.

The literature of Bacteriology is so extensive that a list of titles would make a good sized volume. For the benefit of such of our readers who are not familiar with this literature, we have asked Prof. Julius Nelson, Biologist of the New Jersey Agricultural Station, to outline a course of reading adapted to nurses, students, and such others as may be interested in the study of this important subject. Prof. Nelson suggests that the works named should, if possible, be read in the order here given.

"Story of the Bacteria," T. M. Prudden.

"Dust and its Dangers," T. M. Prudden.

"Fermentation of Milk," H. W. Conn.

Experiment Station bulletin No. 9, U. S. Department of Agriculture.

"Bacteria," C. E. Marshall, Michigan Agricultural Experiment Station bulletin 139.

"Fermentation and Germ Life," Prof. Julius Nelson, New Jersey Agricultural College, Experiment Station bulletin 134.

"Lectures on Bacteria, DeBary, McMillan & Co., New York.

"Micro-organisms and Disease," E. Klein, McMillan & Co.

"Principles of Bacteriology," Abbott. Lea Bros. & Co.

"Atlas of Bacteriology," Lehman & Newman, Wm. Wood & Co.

"Manual of Bacteriology," Sternberg. Wm. Wood & Co.

In the Johnson & Johnson laboratories the following books are used in the training of operatives as to the principles involved and the details to be observed in the preparation of aseptic surgical dressings.

Gauze Dressings in Surgery, Johnson & Johnson.

Text Book of Nursing, Weeks Shaw.

Modern Methods of Wound Treatment, Johnson & Johnson.

The Rules of Aseptic and Antiseptic Surgery, Gerster.

Asepsis and Antisepsis, Buchanan.

The Aseptic Treatment of Wounds, Schimmelbusch.

Manual of Bacteriology, Crookshank.

Manual of Bateriology, Sternberg.

Surgical Asepsis, Beck.

Asepsis Secundum Artem, Johnson & Johnson.

Modern Surgical Dressings, Kilmer.

Aseptic Surgical Technique, Robb.

The Principles of Surgery, McGuire.

APPLIED BACTERIOLOGY.

Among the brilliant results already obtained from the study of bacteriology has been the establishment on a scientific basis of a thorough technique for surgical operations. No less important has been the application of the science of bacteriology to the manufacture of surgical dressings.

The first practical application of an aseptic and antiseptic technique in the manufacture of surgical dressings for the market is undoubtedly to the credit of Johnson & Johnson. From the first inception until now, in their laboratories, no cost nor pains have been spared to apply to their work in a practical manner every advancement in bacteriology. The dressings emanating from these laboratories are prepared under a technique which observes every minute detail, the utility of which has been proven by bacteriological experiment. These principles have governed the erection of buildings, the fitting up of rooms from which bacteria could be excluded, the development of processes which would destroy bacteria, the devising of modes of handling dressings which would avoid the risk of exposure to infection by bacteria, the invention of modes of packing dressings which secure them from contamination by bacteria, the training of employees in the principles of practical bacteriology, in short, the employment of rigid systems of bacteriological technique.

A specific, interesting and important part of the work is that conducted in the Bacteriological Laboratory proper, where the living bacteria are studied. Here, living and growing under various conditions of cultivation, those particular forms of life which infect wounds are under study and experiment. The action and effects of the various processes of sterilization are submitted to actual test of antiseptic disinfectants with the particular species of germs liable to be encountered by the surgeon. This practical application of bacteriology secures scientific accuracy and precision in the products. The asepsis thus secured is asepsis from a bacteriological standpoint, the technique being controlled by actual bacteriological experiment.

We should note that in the practice of surgery, under the most favorable conditions, it is only possible to exclude from the site of the operation the harmful or disease-producing bacteria, while in the preparation of dressings under the methods here noted, or by the bacteriological methods, all forms of bacteria can be and are excluded and destroyed.

RED CROSS
ASEPTIC CATGUT LIGATURES.
IN DOUBLE ENVELOPE GERM PROOF.
No 3. Length 30 inches
These Ligatures have been made absolutely aseptic by successive sterilizations, including boiling in Cutrol Compound at 320-340 degrees.
CAUTION—To prevent infection, disinfected hands or forceps should be used to open the inner envelope.
JOHNSON'S ASEPTIC LABORATORIES. Johnson & Johnson NEW BRUNSWICK N. J. U.S.A.

STERILIZATION OF DRESSINGS.

Sterilization of dressings means their subjection to a process which will effectually destroy germ life if present; and during such process they must be packed in such a way that they cannot become reinfected.

An idea of the means employed for this purpose in the Johnson & Johnson laboratories may be gained by tracing the progress of a yard of gauze through the various stages of preparation, somewhat as follows:

It is first rendered absorbent and bleached and arrives at the aseptic room to be made into dressings. The jars in which it will be packed, with their tops, fastenings, etc., are brought to the same point from a bath in hot soda solution. If the gauze is to be impregnated with antiseptics, it is done in this outer or ante-room. The gauze, the containers, and all things pertaining thereto next pass into the sterilizing chamber. This chamber forms a part of the dividing wall between the anteroom and the aseptic room. The chamber is round in form, large enough to hold a wagon-load of goods. It is constructed with thick walls made of metal, asbestos and other non-conducting material. The interior is lined with steam-pipe radiators for heating the air within the chamber. The doors are steam-tight and held in place by ratchet screws.

The chambers are fitted with steam supply and escape connections, gauges for pressure and vacuum, safety valves, exhaust valves, etc. Cars with trays convey the articles to be treated. Supply pipes controlled by valves admit live steam to the interior of the chamber. The actions involved in the operations within the chamber are:

(a) Preliminary warming of the materials to prevent condensation.

(d) Subsequent exhaustion of steam and substitution of heated air.

After the gauze passes into this chamber, the doors are closed and it then becomes a hot-air chamber. The air is then exhausted to a vacuum of 10 or 12 pounds; saturated streaming steam is then let in; the temperature soon rises to possibly 240° F., and the pressure gauge indicates 5 to 10 pounds. The steam pipes are now closed; the vacuum pump is again started until the proper vacuum is obtained.

Again steam is turned on, and so on, in turn, currents of saturated steam follow each other through the vacuum for from one to two hours. Every part of the chamber is penetrated, every fiber is subjected to the action of this most efficient of bactericides. The most resistant form of germ life must be reached and destroyed. From the sterilizing chamber the gauze passes directly into the aseptic room. In this room, all persons, tables and apparatus having been previously prepared, the dressings are cut, folded and packed in the jars and the covers laid on loosely.

(A large portion of this work is done by apparatus, to avoid touching with the hands.)

This work is rapidly performed, and the filled jars returned to the sterilizing chambers for the final sterilization which renders infection by handling absolutely impossible. When this has been completed the jar seals are locked. For dressings packed in jars, this process is one of hermetic sealing, a partial vacuum having been formed within the jars during the heating and cooling. The finished dressings now pass on to be labelled, put in cartoons and made ready for shipment.

These same chambers are utilized for disinfection with formaldehyde vapors, the process being; first heating of the chambers; exhaustion of the air; filling the chamber with formaldehyde vapors, which penetrate every portion of the material; and finally, exhaustion of the formaldehyde vapors, which are in turn replaced with heated air.

EXPLANATION OF THE COLORED PLATES.

A. Stick culture of Anthrax bacilli in nutrient gelatine (made by stabbing the gelatine with a needle carrying the bacilli), along the line of puncture is the characteristic mycelial-like growth extending into the culture medium; at the top where the growth is most abundant liquifaction of the gelatine is apparent.

a. Bacillus anthracis magnified 900 diameters; stained to show spores within the thread-like filaments. This bacillus is quite frequently present in commercial catgut.

The bacillus of anthrax is frequently employed as a test organism. The anthrax bacillus is associated with a most fatal infectious disease prevailing extensively among sheep and cattle in all parts of the world. The infection is communicable to man where it is known as "Wool Sorter's Disease."

The bacillus anthrax is the most highly resistant of any of the bacteria met with by the surgeon. It produces spores capable of preserving their vitality for years in a dry condition. The spores of anthrax require for their destruction a temperature of 284° F. for three hours, a temperature which would be destructive of cotton, gauze fibres or similar material. The spores are also very resistant to chemicals and other agents usually employed in the destruction of bacteria. Hence the utility of employing this particular bacillus in bacteriological tests.

B. Tetanus bacilli—Stab Culture in glucose gelatine (characteristic growth along the line of puncture and radiate out growth is shown).

b. Bacillus of tetanus from Agar Agar culture. Stained to show spore bearing rods; magnification 800 diameters.

C. Bacillus tuberculosos (from human sputum), surface growth on glycerine bouillion.

c. Sputum from tuberculosis patient magnified 700 diametrs. Stained showing the bacillus tuberculosis appearing as red rods.

D. Diptheria bacilli—as developed on the surface of blood serum; colonies grayish white round and elevated above the surface.

d. Colonies of diptheria bacilli with colonies of staphylococcus, pyogenes aureus natural size and color on blood serum.

e. Gonorrheal pus (with epithelial cells), stained micrococci are seen as minute dots arranged in pairs or groups of four; magnified about 1000.

f. Bacillus subtilis—(from hay infusion), showing colonies as they appear in surface cultivations on potato. The Bacillus subtilis is not pathogenic. This bacillus possesses strong powers of resistance against antiseptic agents, heat, etc., and is used as a test organism in sterilization experiments.

g. Fowl cholera bacilli (Colony), growth on surface of potato (natural).

h. Colony of bacteria taken from ordinary water—growing on potato; magnified 25 diameters.

BACTERIOLOGICAL TESTS.

One of the many practical applications of bacteriology is the testing of surgical dressing material, in order to ascertain whether it is surgically clean, or free from bacteria.

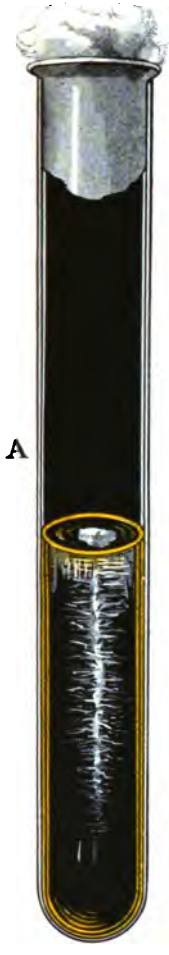
In the laboratories of Johnson & Johnson, methods have been worked out and are applied in experimental work as well as when new methods are under consideration. These tests are also applied in the working processes for sterilizing cotton, gauze, ligatures and other forms of surgical dressings.

These tests are based upon the following postulates:—

Bacteria will grow when placed in a proper soil and subjected to a favorable temperature.

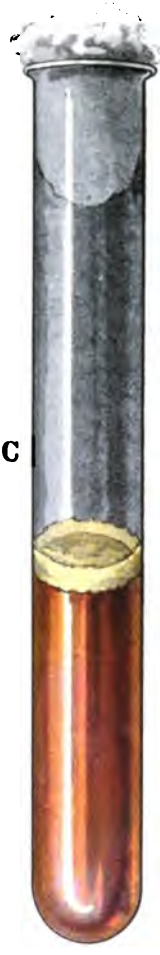
By placing a certain object, such as a piece of wood, gauze, cotton, ligature or other material in a proper soil, under proper conditions, we can ascertain whether it does or does not contain bacteria; by this process we can also ascertain whether a given method of sterilization does or does not destroy all bacteria.

To prove the effectiveness of the



Anthrax bacilli
Cultivation in gelatine.

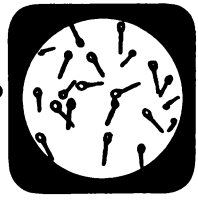
Tetanus bacilli
Cultivation in glucose gelatine.



Bacilli tuberculosis (human)
Cultivation in glycerine bouillion.

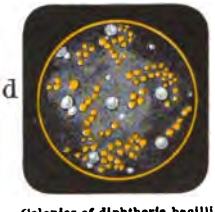
Bacilli Diphtheria
Cultivation in blood serum

Anthrax bacillus with spores from gelatine culture (stained) X 900



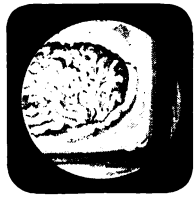
Tetanus bacillus stained showing spores X 800

Tuberculosis sputum (stained) showing bacillus X 700.

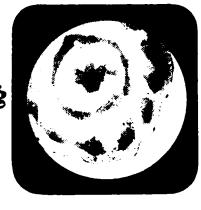


Colonies of diphtheria bacilli with staphylococcus, pyogenes aureus in blood serum (natural)

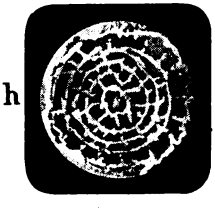
Gonorrheal pus showing Micrococci (stained) X 1000.



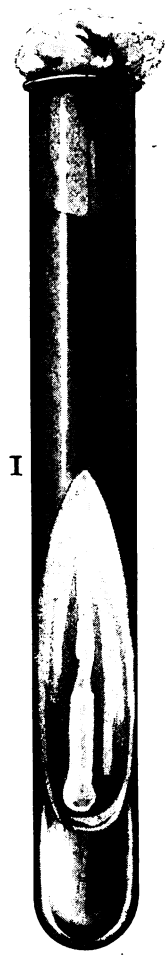
Bacillus subtilis [from Hay] Cultivation on potato



Fowl cholera bacilli [Colony] Cultivation on potato.



Colony of bacteria from Water X 25.

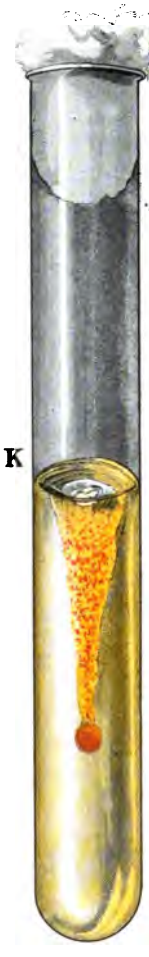


I

Pneumonia Micrococci
Cultivation in Agar Agar.

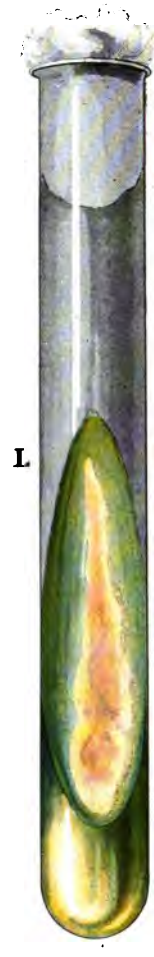
J

Micrococci erysipelatis
Cultivation in Agar Agar.



K

Micrococci pyogenes
aureus [from pus]
Cultivation in gelatine.



L

Bacilli of Green Pus
Cultivation in Agar Agar.

M

Bacilli coli communis
Cultivation in gelatine.

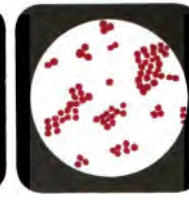
i

Human saliva showing
Micrococcus [stained] X 800.

j

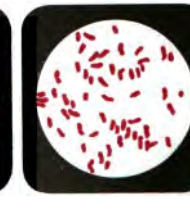
Micrococci erysipelatis
Colony on gelatine X 80.

k



Micrococci pyogenes
aureus stained X 800.

l



Bacillus of Green Pus
stained X 800

m

Bacillus coli communis
stained
Showing vibratory cilia.

EXPLANATION OF COLORED PLATES.

I. Surface cultivation on Agar Agar—Micrococcus Pneumonia (Pasteuri). The cause of croupous pneumonia in man; found in human saliva (in health); has been identified in pus from acute abscesses, formed in pneumonia tonsillitis otitis media, arthritis and various complication of pneumonia).

i. Human saliva (stained), showing Micrococcus pneumonia (appearing as dots), magnified 800 diameters. (The designation pneumococcus given on the colored cut is an error.)

J. Stick culture of Micrococci Erysipelas (streptococcus pyogenes), showing minute spherical granular colonies along the line of entrance of the inoculating needle; cause of erysipelas, puerepal fever—frequently found in acute abscesses and diptheria; has been found in healthy human skin and mucous membrane.

j. A colony of micrococcus erysipelatis growing on nutrient gelatine magnified X 80 (Natural color.)

K. Micrococcus pyogenes aureus (golden staphylococcus), from pus growing in Agar Agar; the liquification of the gelatine is seen along the line of culture and the deposit of golden yellow pigment. This species of bacteria is very widely distributed and is a very common cause of wound infection.

k. Micrococci pyogenes aureus magnified 800 diameters (stained), the bacteria appear in chains or groups quite frequently of three or four elements.

L. Bacillus pyocyanus (bacillus of green pus), growing on the surface of Agar Agar. The dirty white film of the colonies of the bacillus is seen upon the surface. This bacillus produces a flourescent green pigment which stains the gelatine.

M. Bacillus coli communis—Stick cultivation in gelatine showing the growth over the surface and an abundant development along the line of puncture. In some cultures branches, moss-like tufts develop at intervals along the line of growth.

m. Bacillus coli communis magnified X 1500 and stained showing the vibratory filaments attached to the rod-like or oval cells.

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processes employed in sterilizing surgical dressings, the method followed is to place a portion of the material in question, for example, a piece of gauze, in a mixture known to contain living bacteria, and then to subject the material thus covered with bacteria to the same process of sterilization and to the same conditions as are applied to gauze, cotton, etc. After the material employed has passed through the processes of sterilization, a portion of it is placed in a soil in which bacteria will grow. This soil is known as culture jelly. The whole is then placed under conditions favorable for growth.

If no growth of bacteria takes place it is a proof that the processes of sterilization have destroyed the bacteria with which the material was infected at the beginning of the test.

Note.—Bacteria growing in a suitable soil form colonies or clusters that are visible to the naked eye. These colonies take on a certain distinguishing characteristics, e. g. they liquefy gelatine, grow in definite shapes, produce certain colors, etc.

These tests can also be verified by the microscope.

The proofs furnished by these tests are scientifically accurate in that they show the effectiveness of the processes employed to secure surgical cleanliness. The conclusions reached therein need no verification. If a portion of material known to contain bacteria passes through the same process and is subjected to the same conditions as the dressing material prepared by the regular laboratory methods, and at the end the infected material is found to be free from bacteria, we may rightly conclude that all of the dressings passing through such a process cannot fail to be aseptic.

In applying these tests, forms of bacteria that are known to possess high powers of resistance, i. e., are tenacious of life, are used as test organisms.

USEFUL BACTERIA.

Our ideas of germs are so thoroughly associated with disease that we forget that the majority of them are not injurious to man. Indeed they are very useful fellow workers when once we have learned how to manage them.

The bacteria which are useful and even of absolute necessity for the continuance of life, far out-number the pathogenic bacteria whose mission is harm and destruction. The role these infinitesimal creations perform is tremendous when we consider the vast importance of their existence for good and for ill. We must bear witness to the developments now opening up in the application of bacteria in the arts—such as brewing—in the making of butter, cheese, wine and vinegar—the silo and the fertilizing of the soil.

In "The Story of Germ Life," Prof. Conn writes that "at the beginning of the ninth decade of the century, bacteria were scarcely heard of outside of scientific circles, and very little was known about them even among scientists. To-day they are almost household words, and every one who reads is beginning to recognize that they have important relations to his every day life. Minute as they are, their importance can hardly be overrated, for upon their activities is founded the continued life of the animal and vegetable kingdom. For good and for ill, they are agents of never-ceasing and almost unlimited powers."

But the power of multiplication which these organisms possess demonstrates to us that in dealing with bacteria we are dealing with forces of almost infinite extent. The wonderful power of growth is chiefly due to the fact that bacteria feed upon food which is highly organized and already in condition for absorption

The very general impression is that bacteria owe all their importance to their powers of destruction, and are therefore regarded as the deadly enemies of life—but Prof. Conn has gathered together in his "Story of Germ Life" an interesting account of useful bacteria, showing that in our industries and in natural processes they are agents of important value. He states that in the arts there are several industries which may properly be classed together as maceration industries, all of which are based upon the decomposition powers of bacteria. Hardly any animal or vegetable substance is able to resist their softening influence and the artisan relies upon this power in several different directions."

"By purely empirical means," says Professor Conn, "mankind has learned methods of encouraging the development of some of these products, and is to-day making practical use of this power possessed by bacteria of furnishing desired chemical compounds. Industries involving the investment of hundreds of millions of dollars are founded upon the products of bacterial life, and they have a far more important relation to our every day life than is commonly imagined."

Whatever may be the value of bacteria in the arts and manufactures, in which they certainly play no unimportant role, Prof. Conn states that there is hardly a moment in our life when we are not using some of the direct or indirect products of bacterial action. Bacteria are the scavengers of nature—keeping the surface of the earth in the proper condition for the growth of animals and plants. When the giant of the forest dies and falls to the ground it is by the action of the bacteria that the tree trunk gradually disappears from view. In the same manner the body of the dead animal undergoes the process of the softening of its tissues by decay. Bacterial activity removes it also. This is the secret of nature's eternal freshness. The body of the plant or animal disappears as such and its substance is converted into gaseous form which is dissipated in the air or into simple compounds which sink into the earth. If we think for a moment of the condition of the world, were there no such decomposing agents, we shall see that long since the earth would have been uninhabitable. Bacteria are, therefore, necessary to keep the surface of the earth fresh and unincumbered so that life may continue.

Owing to the absence of chlorophyl from their composition the bacteria are forced to obtain their nutritive materials from organic matters as such, and lead, therefore, either a saprophytic or parasitic form of existence.

Their life-processes are so rapid,

complex and energetic that they result in the most profound alterations in the structure and composition of the materials in and upon which they are developing.

Decomposition, putrefaction, and fermentation result from the activities of the saprophytic bacteria, while the changes brought about in the tissues of their host by the pure parasitic forms find expression in disease processes and not infrequently in complete death. Abbot's Bacteriology, p. 28.

The role played in nature by the saprophytic bacteria is a very important one. It is through this ultimate production of carbonic acid ammonia and water by the bacteria, as end products in the processes of decomposition and fermentation of the dead animal and vegetable tissues, that the demands of growing vegetation for these compounds are supplied.

Were it not for the activity of these microscopic living particles, all life upon the surface of the earth would cease. Deprive higher vegetation of the carbon and nitrogen supplied to it as a result of bacterial activity and its development comes rapidly to an end; rob the animal kingdom of the food stuffs supplied to it by the vegetable world, and life is no longer possible. Abbot, p. 28.

"It is plain, therefore, that the saprophytes, which represent the large majority of all bacteria, must be looked upon in the light of benefactors, without which existence would be impossible." In their relation to humanity the positions occupied by the two biologically different groups, the saprophytes on the one hand and the parasites on the other, are diametrically opposite—the saprophyte forms stand in the relation of benefactors, in resolving dead animal and vegetable bodies into their component parts, which serve as food for living vegetation, and, at the same time, they remove from the surface of the earth the remains of all dead organic substances; while the parasitic group exists only at the expense of the more highly organized members of both kingdoms. It is to the parasitic group that the pathogenic organisms belong. Abbot's Bact., p. 28-29.

In addition to the saprophytes that are concerned in the changes already alluded to, there are other forms whose life-processes result in specific changes of most interesting and important natures. Some of these are characterized by their property of producing pigments of different color; these are known as the chromogenic forms. Others are the photogenic or phosphorescent bacteria, these possess the property of producing light. These are found in sea-water and decomposing fish. Still others are called zymogenic bacteria and are concerned in the various fermentations, while the putrefactive or saprogenic are those that produce the particular fermentation that we know as putrefaction. Another very important saprophytic group comprises the so-called nitrifying and denitrifying bacteria whose activities are concerned in specific forms of fermentation—the former oxidizing ammonia to nitrous and nitric acid, the latter reducing nitric acid to nitrous acid and ammonia.

It is through their association (syrabiosis) with the nitrifying bacteria that certain plants, the leguminous, are enabled to make up their nitrogen deficit in part from the free nitrogen of the air. The discovery of this phenomenon gave to free atmospheric (Abbot, p. 30,) nitrogen a biological significance that had hitherto been denied it. The so-called thiogenic bacteria convert sulphuretted hydrogen into higher sulphur compounds.

Of considerable importance and interest in the study of nutritive changes of bacteria is the difference in their relation to oxygen. With certain forms oxygen is essential to the proper performance of their functions, while with another group no evidence of life can be detected under the access of oxygen and in a thin group oxygen appears to play but an unimportant role, for development occurs as well with as without it. (Abbot, p. 33.)

A considerable number of bacteria are able to produce lactic acid from milk sugar and other carbohydrates. (Sternberg, p. 136.)

Among the bacteria which produce lactic acid from milk sugar, we may mention the staphglococci of pus bacillus, lactes aerogenes and Bacillus coli communis.

Acetic acid is also produced from dilute solutions of alcohol by the action of a special bacterial ferment.

Butyric acid is produced by a considerable number of bacteria, one of which is named Bacillus butyricus.

Bacillus Fitzianus also produces some butyric acid in solutions containing glycerine.

The Bacillus Kaukasicas produces a variety of products in the fermented milk which is a favorite drink among the Caucasians. The inhabitants of the Caucasian mountains prepare this fermented drink in a very simple manner from the milk of cows and goats to which they add the dried ferment collected from a receptacle in which the fermentation had previously taken place. (Sternberg. p. 137.)

Viscous fermentation is a special fermentation which occurs sometimes in wines and in the juices of bulbous roots containing glucose, and in milk is produced by various bacteria. The fermented juices become very viscous owing to the formation of a gum like product resembling dextrine. Marsh gas is produced by the fermentation of cellulose through the action of micro-organisms.

Several species of bacteria produce soluble ferments capable of changing starch into maltose, dextrine, etc. Hueppe has shown that the lactic acid bacillus produced a diastase, and Miller obtained from the human intestine a species which dissolves starch.

A peptonising ferment for gelatine is produced by a considerable number of bacteria.

Some authors also speak of a soluble ferment capable of inverting cane sugar or milk sugar. Hueppe states that such a ferment is produced by the Bacillus acidi lactici. Sternberg

[illegible]

produced from the ammonia of the fecal evacuations of sea-fowls in such enormous quantities as to form the source of supply of this article for the commercial world.

A more familiar example, though hardly upon such a great scale, is that seen in the decomposition and subsequent nitrification of the organic matters of sewage and other impure waters in the process of purification by filtration through the soil, a process in which it is possible to follow, by chemical means, the organic matters from their condition as such through their conspicuous modifications to their ultimate conversion into ammonia nitrous and nitric acids.

Thus we see that man's very existence, while menaced on one hand by a few germs, is on the other dependent upon their activity. That they play a very valuable and but little appreciated part in the continuance of life and well being of man.

There are indeed many ways in which the products of these microscopic cells are waiting man's bidding to become valuable assistants to man's upward progress.

GERM-FREE ASEPTIC DRESSINGS.

In the early history of the preparation of surgical dressings no regard was paid to the means by which bacteria might become distributed and carried to the dressing material. Gauze and absorbent cotton are now manufactured in cotton mills where no attention is given to this subject. It is also probable that few of the many manufacturers of surgical dressings or their employees are familiar with the methods by which bacteria may be distributed, and, come to the dressing material: how few dealers who handle or prepare these dressings are aware of the principles which govern this subject. In the laboratory of Johnson & Johnson the means by which dressing material may be infected, and the means by which bacteria are distributed has received the greatest amount of attention.

The particular rules by which infection by contact is avoided in Johnson & Johnson's Laboratories, and the measures adopted for their exclusion are given in the pamphlet "Aseptic

Dressings" where the importance of the subject is emphasized through the rules therein suggested. This pamphlet contains the working rules of the Laboratory. The particular rules upon this point are herewith given.

Infection by all channels, direct or indirect, must be excluded. If only aseptic hands, aseptic tables, aseptic instruments and aseptic containers touch a dressing, it cannot become infected.

To produce aseptic surgical dressings, demands thorough preparation of every person who may take part therein, and the sterilization of everything which may be used in the dressing or in any way come in contact with it.

"Dust and dirt around a surgical dressing are more than dust and dirt—they are danger."

PERSONAL CLEANLINESS

The personal cleanliness of those who may in any way engage in handling surgical dressings is of the highest importance. Of each individual will be required, at all times, general personal cleanliness, such as follow frequent bathing, clean clothing, cleanly habits and practice. (Persons having any form of skin disease, or sores, catarrhal troubles, etc., will not be allowed to engage in this work.)

Employees in whose family there exists any contagious diseases must report the same in order to allow proper provision to be made in their case.

Every person who enters the aseptic operating room must put on the prescribed washable garments, covering the hair with a suitable cap. Flowers, ornaments and jewelry must be removed. Before entering the aseptic room they must wash their face and thoroughly scrub their hands, forearm, and face according to the prescribed rules.

Everything outside of the aseptic room, everything and everybody passing into the aseptic room from the outside are to be regarded as infected until subjected to special cleansing operations. Everything required for use in the aseptic room before being carried in, must be sterilized according to the prescribed rules.

Employees, messengers, etc., from other departments must not be allowed admission to this room under any circumstances.

Visitors may only be admitted by express permission from the office, and then only when under the direction and charge of the nurse in charge of the room. Under no circumstances must visitors or any other persons be allowed to mingle with the operatives, to touch the tables, dressings or apparatus.

All sweeping, dusting, etc., of the aseptic room must be done at the close of the day's work. As far as possible, all finished goods must be removed. Tools, apparatus, towels, aprons, aseptible clothing, etc., placed in the sterilizing chambers. All large apparatus and tables covered with impervious antiseptic cloth. The floor must be well moistened before sweeping. Dusting must be done with damp cloths only. After sweeping and dusting, the covers of the tables must remain for at least eight hours. As often as it may be deemed necessary, the entire wood and iron work of the room must be washed with soap and water, then with antiseptic solutions and the room closed and fumigated with sulphur and currents of steam.

HANDLING DRESSINGS.

Before beginning work of handling dressings, all tables, trucks, and such apparatus as may come in contact with the dressings must be thoroughly washed in the prescribed antiseptic solutions, and wiped with sterilized cloths. All movable apparatus, tools, etc., must be sterilized in the sterilizing chambers.

All preparation and cleaning must be completed, aseptic clothing put on and hands made aseptic before handling or exposing the dressings.

DONT'S.

Don't allow a dressing to touch your person or clothing, unprepared tables, tools or apparatus.

Don't touch any other person.

Don't touch a dressing with hands that are not surgically clean.

Don't, while handling dressings, touch your hands to your clothing, face, hair, eyes or mouth.

Don't allow perspiration to drop on tables or dressings.

Don't cough or sneeze over the dressings or tables.

Don't carry or use a pocket handkerchief.

Don't put anything in your mouth.

Don't wear flowers, ornaments, jewelry or rings.

Don't pick up any dressing or thing that has fallen to the floor.

Dont use anything that has fallen to the floor without sterilizing it.

Don't fail to have everything surgically clean before you use it.

Don't touch anything that has not been made sterile, without re-washing the hands.

Don't be afraid to wash your hands often, they will not wash away.

Don't allow persons who have not prepared themselves, to touch a dressing or anything used in their preparation.

Don't go out of the room and come back again without as thoroughly re-washing as when you first entered.

Don't be afraid to be particular about everything you do or touch.

Don't handle anything when it is not necessary to do so.

LITERATURE.

From our laboratory there is constantly being issued monographs, booklets, etc., of a scientific nature, for circulation among physicians and pharmacists. This is exclusive of issues of a purely commercial nature, such as price lists, catalogues, cards and circulars, etc. Of these publications many are now out of print. The following recent issues will be sent free to any address upon application:

Papoid in Surgery—Methods and formula for the use of Papoid in Diphtheria Surgery, skin diseases, removal of tattoo marks, etc., 24 pages.

On Dyspesia—Methods of diagnosis, with blank for recording History, Symptoms, etc., in disordered digestion, with suggestion on treatment, etc.

Aseptic Dressings—Rules and Suggestions. Hand-book used by operatives in preparing surgical dressings in Johnson & Johnson's Aseptic Laboratories. 12 pages.

When and Where to Blister.—Index of the therapy of blistering, diagrams of proper points for vesication. Dressing and care of blisters. Booklet, 24 pages.

A Book with a Mission.—A book crowded with information about contagious diseases and disinfection. The suggestions are easy, clear, practical and useful. 32 pages.

A Statement of Facts.—Contributions to the Belladonna and Scopola question. 32 pages.

Intestinal Indigestion.—An address by Dr. Thomas Hunt Stucky before the faculty and members of the Marion Sims College of Medicine, Louisville, Ky. 32 pages.

Red Cross Notes.—Issued monthly, containing original articles, laboratory reports, and information of interest to physicians and druggists. Copies of each issue are sent to all who register a request for same.

JOHN ARTHUR KIMBALL,
Assistant Superintendent Johnson & Johnson's Laboratories.
Died February 22, 1900.
A FAITHFUL FELLOW WORKER.

EXTERNAL THERAPY.

The notes published in this department are mainly those which have been gathered from our correspondence department. They relate more particularly to the external application of remedies. Our correspondence with the medical profession, while extending over the entire globe, is usually limited to the particular products which we manufacture; therefore, these notes cannot be expected to cover the entire field of external Materia Medica.

We shall be glad to receive from any of our readers suggestions upon external therapeutics, and especially details and methods which have been found successful in their own practice.

Sterilization of Surgical Instruments with Cyanide of Mercury.—Marechal has observed that steel or nickel instruments are not attacked, when the solution of corrosive sublimate is rendered alkaline by the addition of borax, soda, or sodium benzoate. Deniges has found it preferable to substitute mercury cyanide for the sublimate in such solutions, and recommends the following solution for the sterilization of instruments: Cyanide of mercury 2 to 5 parts, borax 10 parts (or soda 14 parts) and water 1,000 parts.—(Sudd. Ap. Ztg.)

Catgut as a Skin Suture.—Bockmann says: In the skin, which only with difficulty, if at all, can be rendered aseptic, sterile catgut will likely produce stitch abscess, as the catgut will form a good culture soil for the bacteria present. In order to preserve catgut as a skin suture, to the exclusion of all others, it will be necessary, so far as I am able to judge, to continue along the line indicated in retaining the fat, and seek an agent which will render catgut an impossible culture medium, and remain with it until the last fiber is absorbed.

Sterilization of Hypodermic Solutions.—D. Marinucci has found large numbers of living germs, some of a harmful nature, in freshly prepared hypodermic solutions of strychnine sulphate, morphine hydrochlorate, atropine sulphate, eserine, etc. Sterilization by heat did not affect the therapeutic value of strychnine and quinine, but partly checked the action of morphine and atropine. Eserine and atropine solutions are said to be best prepared with a solution of corrosive sublimate (1 to 1,000), which renders them aseptic without modifying their therapeutic properties. It is suggested that all such solutions should be renewed every fourteen days.

For Softening and Cutting Plaster of Paris Splints.—A note in the Fort Wayne Medical Journal suggests the use of vinegar to soften plaster of Paris splints so that they can be cut easily with a knife or with scissors. Another excellent method, it says, is to use a strong solution of bichloride of mercury, simply moistening the splint along the line to be cut. Either vinegar or sugar will quickly remove the plaster from the hands.

Preservation of Spread Plasters.—The statement that plasters are best preserved by keeping them in a cool and dry place, has been corroborated by an experiment by A. Schneider. Eleven years ago he placed a plaster, wrapped loosely in paper, in a desiccator over sulphuric acid, where it was left undisturbed until recently. A recent examination proved the plaster to have retained fully its adhesive power and other properties. As it is impracticable to keep plasters in quantities over sulphuric acid in a desiccator, Schneider recommends placing them in closed vessels containing burnt lime and in a cool place. (Ztsch. f. Ph.)

Pneumonia.—Dr. C. N. Owen, of Littleton, W. Va., writes that he has been using blisters in pneumonia in a practice of 48 years, and has never lost a patient under 60 years of age. He gives an instance of a blister being used in the treatment of pneumonia in a babe eight months old, with the happiest results.

Plaster Paris Bandages.—In making plaster-of-Paris bandages, or in using those that are ready-made, see if the plaster appears to be damp. If so it will not set well, but may be greatly improved by placing it in the kitchen oven for a short time.—Lilienthal.

Cleaning Rusty Instruments.—Brodie advises leaving rusty instruments all night in a saturated solution of chloride of tin in distilled water. After-

wards rinse in running water and rub with chamois.

Seiler's Antiseptic Solution.—Dr. Seiler's formula is substantially as follows:

Sodium Bicarbonate	2 dr.
Borax	2 dr.
Sodium Benzoate	5 grn.
Sodium Salicylate	5 grn.
Eucalyptol	3 min.
Thymol	3 min.
Menthol	2 grn.
Oil Wintergreen	2 drops.
Glycerin	2½ fl. oz.
Alcohol	1 fl. oz.
Distilled Water.....to make	4 pints.

Dissolve the volatile ingredients in the alcohol, triturate the solution with the sodium salts, dissolve the mixture in the water, and add the glycerin. Allow to stand for about a fortnight, with occasional shaking, before dispensing.

Deodorizing the Hands.—An exchange says that "a successful method of purifying the hands is the putting of a mixture of flour and mustard into the bath, when washing, and then discontinue rubbing the skin when smarting is felt. This very efficacious method of sterilization of the hands also radically deodorizes them. Even the odor of iodoform is quite removed by soaping done in combination with flour of mustard."

The Sterilization of Ophthalmic Instruments.—Dr. De Schweinetz makes a useful suggestion in regard to the sterilization of ophthalmic instruments without blunting or tarnishing them. He finds that ten minutes' immersion in a 1:1000 formaldehyde solution is satisfactory; but he prefers the use of pure formaldehyde gas. The instruments are first washed and dried, and are then placed in a box in the bottom of which there is a dish of formaldehyde. A small piece of calcium chloride is placed in the dish and the close-fitting cover adjusted. In ten minutes the instruments are sterile; no harm is done by leaving them in the gas for an hour.

Removal of Tattoo Marks.—Dr. A. H. Ohman-Dumesnil, in a paper read before the St. Louis Academy of Medical and Surgical Sciences, gives a method for the removal of tattoo marks which has been used by him with great success for the past ten years.

The tattooed skin is made surgically clean, or, in other words, aseptic. It is first carefully shaved, if necessary, then thoroughly washed with soap and water. After this a thorough cleansing with alcohol is given, and finally a solution of bichloride, one in a thousand, is applied. The skin is anesthetized with a spray of chloride of ethyl. Then the surface which is tattooed is covered over with glycerole of papoid. Next in order is to take a bunch of needles, previously prepared and rendered aseptic, and containing from six to ten very fine cambric needles, tightly wound with silk thread, and dip them in glycerole of papoid. These are then driven with a sharp blow into the tattooed part. This is repeated several times over the entire skin. It goes without saying that this tattooing must be thorough or but an imperfect result will be obtained, on account of the depth at which the pigment is found. And yet the needles must not be driven in too far, but merely far enough to draw the least quantity of blood.

After this curative tattooing the glycerole of papoid is poured over the area worked on and covered over with gauze. In two or three days this latter is removed and the tattoo mark will only present a very light hazy appearance. In a very short time crusts will appear at the points tattooed with glycerole of papoid. These crusts will, in turn, fall off, and the tattooing will be gone.

If the least bit remains the same process must be repeated. I have found it necessary, as a general rule, to go over certain parts a second time in order to obtain the best results. A peculiarity in reference to this is that the process does not bring about the swelling or inflammatory reaction observed in tattooing with india ink or other pigments.

Dr. Dumesnil's method of preparing the papoid glycerole is as follows:

Papoid (J. & J.), 12 grains; water, 60 minims; glycerine, 180 minims; dilute hydrochloric acid, 3 drops.

The water should be distilled water, or that which has just been boiled. The glycerine should be chemically pure. To make the mixture, first add the acid to the water (be sure to use the dilute acid), rub with the papoid in a mortar and let stand for an hour or more; add the glycerine and let the

whole stand three hours or more, then filter.

Antiseptic Solutions—Coloration as a Precautionary Measure.—In view of the frequent accidents which have occurred from the use of antiseptic solutions, it has been proposed to add coloring matters to the solutions, which would give them a characteristic color and thus prevent their being taken internally. For solutions of mercuric chloride blues and violets are to be used thus: To a liter of the antiseptic add one drop methyl violet solution, 1:20; or two drops Nicholson's blue, 1:100; of fifty drops indigo carmine, 1:100; or five drops malachite green, 1:100. For solutions of silver nitrate, the same colorants may be used in the same proportions. For solutions of mercuric oxycyanide use, per liter, twenty drops of saturated solution of helianthine; or three drops of aniline orange, 1:20; or four drops of fluorescine, 1:20. For solutions of carbolic acid use, per liter, two drops of fuchsine, 1:100; or ten drops of eosine, 1:100; or four drops of safranine, 1:100.

Local Application to the Mucous Membrane.—Dr. L. T. Archambeault of Brooklyn, New York, writes: My son, Dr. C. F. Archambeault and myself are dispensing Johnson's Digestive Tablets very extensively. Substitutions, such as Johnson's dyspepsia cure, etc., has made us chary of writing prescriptions for them. They fulfill all and more than you claim for them. By crushing the tablet and adding twice the quantity of bismuth subnit, it has proven the best of local applications to all mucous membranes; as a snuff in acute or chronic coryza; in apthous sore mouth of children and adults; in pruritic, smarting abrasions of rectum or vagina; last but not least in the painful and distressing excoriation or fissured nipples of nursing mothers, it acts as a specific, relieving pain and inducing healing in a remarkably short time.

Johnson's Iodoform.—Dr. Douglas Hayes, of Tracy City, Tennessee, writes:

On page No. 1 of your Red Cross Notes, you state that you have Odorless Iodoform. In removing the odor from the drug, have you not deprived it of some of its therapeautical value? Do you honestly believe that your preparation of Odorless Iodoform will produce the same good results, as that which we receive from U. S. P. Iodoform. I should be greatly pleased to receive a small sample of your preparation. I have a high regard for your preparations of Gauze and Cotton—having used some in my practice for ten years, and I have yet my first objection to find.

Reports from hundreds of surgeons who have given Iodoform Johnson a careful trial in their practice, side by side with the ordinary product, go to show conclusively that the action and uses of Iodoform Johnson are identical with those of Iodoform U. S. P. It gives the identical physiological, antiseptic, therapeutic results; it is to be used by the same methods and in the same dosage. It may be prepared for application the same as ordinary iodoform in solution, powder, ointment, paste, pills, suppositories, etc. It possesses the added advantage of more pronounced cicatrization, less tendency to produce irritation and toxic symptoms, but above all being inodorous, does not produce disturbance of the stomach, nerves, nor possess any of the highly objectionable features which follow the ordinary use of this drug. This product should not be confused with many substitutes for iodoform now on the market, but must be considered as identical with iodoform, except for odor.

Information Wanted.—A correspondent desires suggestions as to the best methods of handling bedsores, particularly as to the use of adhesive plaster in the form of pads, etc.

A HEALING OINTMENT.

I would like a recipe for a good all-round healing ointment for cuts, ulcers, burns, etc., and as a dressing in minor surgical work.

W. G. STEELE, M. D.
Philadelphia.

Acid carbolic, No. 4.....gtts. x
Ung. resin comp.....oz. ½
Ung. simplicis.....oz. ½
Mix. Sig. Apply three or four times a day.
Iodoform (odorless J & J.).....dr. j
Ung. simplex.....oz. j
M. S. Apply three or four times a day.

Either of the above I think the Doctor will find satisfactory.

G. W. HENRY, M. D.
—Medical World,
Camden, N. J.

Gentlemen—"Red Cross Notes" have come to me on several occasions, I find them quite interesting, specially the items about cotton.

Yours respectfully,
F. H. ENGLAND, M. D.
Chicago, Ill.

Johnson & Johnson:

Gentlemen—Thanks for "Red Cross Notes" yesterday. We use nothing else but J & J's gauze and beautiful cotton. Courtesy esteemed. Yours truly,

DRS. W. & EMMA UNDERWOOD.
Springfield, Ohio.

INFRINGEMENT OF THE RED CROSS TRADEMARK.

In the Court of Chancery of New Jersey, Johnson & Johnson, manufacturing chemists of New Brunswick, N. J., have instituted suit against Seabury & Johnson, manufacturing chemists, of 59 Maiden Lane, New York City, for infringement of trade-mark. The bill of complaint, addressed to the Hon. Alexander T. McGill, Chancellor, was filed last week. The defendants are given until the first week in February to appear, and until the first of March to file their answer. The bill of complaint is a weighty legal document, filling some thirty pages of type-written manuscript, foolscap size. The following is a summary of this complaint:

Johnson & Johnson, a corporation of New Brunswick, N. J., incorporated under the laws of New Jersey in 1887 to manufacture and sell medicinal articles and specialties of various kinds, soon after its incorporation devised new and original packages to contain its manufactures, and in connection therewith made use of a red cross as a symbol to prevent confusion and mistake in the market. The bill asserts that this corporation was the first to make use of a red cross as a mark or designation or in such a way that the symbol was calculated to give a name to the goods, and claims that it is entitled to the exclusive use of a red cross and its equivalent descriptive words, "Red Cross," as a trade-mark and trade name. As an example of usage Johnson & Johnson's absorbent cotton is instanced as being known to the trade as "Red Cross Cotton."

The bill then charges that Seabury & Johnson "fraudulently imitated" the complainant's absorbent cotton, "Borated Cotton," "Carbolated Cotton," "Salicylated Cotton," and gauze, all of which articles, as made by Johnson & Johnson, were known in the markets of the United States and of South America to bear a red cross as a symbol; and further, that the defendant firm offered and sold its absorbent cotton, put up and marked in imitation of Johnson & Johnson's product in the United States and in South America.

It is charged further that the defendants did this after Johnson & Johnson had succeeded in creating a demand for its "Red Cross Cotton," put up in blue cartons of characteristic appearance and differentiated from other cottons, and that in the month of July, 1899, the defendants devised cartons which were unnecessary imitations in size and shape, and in color of interior wrappings, and "sold the said simulated packages bearing labels consisting in part of a red cross as and for 'Red Cross Cotton,' and as and for the cotton of Johnson & Johnson."

These things are characterized as "acts essentially unfair, inequitable and fraudulent, and to the great loss and injury of Johnson & Johnson," which corporation petitions the court for that relief in the premises to which it is in equity entitled, namely, that the firm of Seabury & Johnson be restrained from using the Red Cross symbol, and imitating the goods and packages of the complainant, and that such further relief be granted "as the nature of the case may require and as shall be agreeable to equity and good conscience."

Rowland Cox, of New York City, who is counsel for Johnson & Johnson in this procedure, said to the Era reporter:

"The bill of complaint has only just been filed, and the defendants have not yet made their answer. You may read the bill, if you like, but further than that I do not care to say anything about the case—for several reasons."—Pharmaceutical Era.

The leading feature of Johnson & Johnson's Absorbent Cotton is that it is prepared in a laboratory, where the law of surgical cleanliness guides and overrules all things.

Johnson's Diastase will convert 100 times its weight of starch in 15 minutes. A sample of Johnson's Diastase will be sent any physician on request.

Physicians are requested to correspond with us respecting any of our products. Full information and samples will be furnished when desired. In cases where goods of our manufacture can not be obtained of the dealer we shall esteem it a favor to be informed of the facts.

TO THE MEMBERS OF THE MEDICAL PROFESSION IN THE UNITED STATES.

The cause of humanity and of scientific progress is seriously menaced. Senator Gallinger has again introduced into congress the bill for the "further prevention of cruelty to animals in the District of Columbia," which he has so strenuously and misguidedly advocated in the last two congresses. It is Senate Bill No. 34. Twice the committee on the District of Columbia has, also unfortunately and misguidedly, reported the bill with a favorable consideration. It is speciously drawn to seem as if it were intended only in the interest of prevention of cruelty to animals, but the real object is twofold: 1, to prohibit vivisection and, 2, to aid the passage of similar bills in all the state legislatures.

It hardly needs to be pointed out that this would seriously interfere with or even absolutely stop the experimental work of the Bureau of Animal Industry and the three medical departments of the government, the army, the navy, and the Marine-Hospital Service. The animals themselves might well cry out to be saved from their friends. No more humane work can be done than to discover the means of the prevention of diseases which have ravaged our flocks and herds. All those who raise or own animals, such as horses, cattle, sheep, pigs, chickens, etc., are vitally interested in the preservation of their health and the prevention of disease.

The inestimable value of these scientific researches as to the prevention and cure of disease among human beings it is superfluous to point out. Modern surgery and the antitoxin treatment of diphtheria alone would justify all the vivisection ever done.

As my attention has been called officially to the introduction of the bill, I take the opportunity of appealing to the entire profession of the country to exert itself to the utmost to defeat this most cruel and inhuman effort to promote human and animal misery and death and to restrict scientific research. It is of the utmost importance that every physician who shall read this appeal shall immediately communicate especially with the senators from his state, shall also invoke the aid of the representatives from his or other districts in his state, and by vigorous personal efforts shall aid in defeating the bill.

It is especially requested also that all of the national, state, and county societies, at their next meeting, take action looking toward the same end. If regular meetings are not soon to be held, special meetings should be called. Correspondence is invited from all those who can give any aid.

The committee on the District of Columbia consists of Senator James McMillan, Michigan, chairman, and Senators J. H. Gallinger, New Hampshire; H. C. Hansborough, North Dakota; R. Redfield Proctor, Vermont; J. C. Pritchard, North Carolina; Lucien Baker, Kansas; C. P. Wetmore, Rhode Island; C. J. Faulkner, West Virginia; Thomas S. Martin, Virginia; Wm. M. Stewart, Nevada; and Richard Kenney, Delaware. Personal letters may be addressed to them or to other senators. Petitions should be addressed to the Senate of the United States.

W. W. KEEN, M. D.,
President American Medical Association.

ADHESIVE PLASTER THAT STICKS.

Baltimore, Jan. 31st, 1900.

Johnson & Johnson:

Gentlemen—In your "Red Cross Notes" just at hand, you say, "Send for literature and sample," which I do with very great pleasure. And while I am writing, I will ask, have you a nice adhesive plaster that will stick fast when there is constant dampness of the skin by blood leakage. I try to obtain the best, yet have utterly failed to obtain an article which could be depended upon to keep the parts together after adjustment, which is of the greatest moment after the cut or wound has been cleaned and dusted. It often is out of the question to put in a few stitches to hold a gaping wound together. One who can give us such a plaster will certainly confer a blessing on the doctor and patient. Yours truly,

WM. M. BARNES, M. D.

Johnson's adhesive plaster will stick and is very useful in holding a gaping wound together. It is adhesive at the temperature of the body and will give the surgeon the utmost satisfaction. The adhesive plaster known as Z. O. adhesive is the same in all respects except that it contains a percentage of zinc oxide which overcomes all tendency to irritation. A sample of Z. O. plaster will be sent by the makers on request.

Plunging the jar in hot water to remove external infection.

Removing the clamp.

Breaking the vacuum seal by prying open with a blunt instrument.

Removing the cotton covering with sterile forceps.

HOW TO OPEN A GAUZE JAR.

The method of packing Linton Moist Gauze has reached the highest attainable point. The gauze is prepared and handled under the strictest system of surgical cleanliness, packed in sterilized glass jars, covered with a layer of loose cotton which forms a filter against air infection. The package and its contents are then sterilized by steam in a vacuum. It is in this part of the process that the highest point of perfection is reached.

The jar used has a perfect glass top resting upon a washer of pure para rubber, making an absolutely tight joint. In the sterilizing process the covers are laid on loosely. From the sterilizing chamber all air is removed and replaced by sterilized steam, thus subjecting the jar and its contents to an atmosphere of steam unmixed with air. After an hour the steam is exhausted by the vacuum pump, hot air being let in to break the vacuum, at once sealing instantly every jar.

We have thus absolutely sterile gauze sealed in a glass jar, free from air. A spring clamp and seal hold the cover securely in place.

Linton Moist Gauze in these perfect containers cannot become infected unless the jar is opened or broken.

The cuts illustrate a method of opening the jar followed by careful surgeons. This procedure obviates all danger of infection in handling.

Cutting the gauze into lengths with sterile scissors.

RED CROSS NOTES

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SERIES II. New Brunswick, N. J. No12

BOSTON MEDICAL
JUN23 1900

The only Way

to secure surgically clean cotton, is to demand the blue carton with red cross and the signature of Johnson & Johnson.

Easily Cut

Any Shape

LINTINE

Is better and cheaper than lint or absorbent cotton, as it can be cut with a knife or shears, or torn into bandages. It is a new fabric made of sterilized aseptic absorbent cotton, felted into thin sheets.

It has no loose fibers to stick to the wound, covers fifty per cent. more surface than same weight of lint or cotton, and is cheap enough to throw away after use. Send for sample.

JOHNSON & JOHNSON, New Brunswick, N. J.

A Little Thing Well Done

Johnson's Mustard Plaster, made **from pure mustard**, perfect, penetrating, quick and satisfactory.

In every article of our extensive line you always find

Satisfaction

The Same Thing.

Our Papoid and Soda Tablets have been universally prescribed and endorsed; in fact, to the usefulness of this particular preparation is due the remarkable success of Papoid.

Finding that other combinations of Papoid in tablet form were dispensed when this article was desired, thus causing great confusion, annoyance and disappointment, we have dropped the former name (Papoid and Soda Tablets) for the designation

Johnson's Digestive Tablets

Formula.—Papoid, Gr. 1; Soda Bicarb, Grs. iii; Sacch. Lactis and Menth pip. q.s.

Johnson & Johnson
New Brunswick, N. J.

RED CROSS NOTES

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SERIES II, No. 12. NEW BRUNSWICK, N. J. 1900.

RED CROSS NOTES.

The issuance of the present number completes Series II of this publication. The cordial reception which has been accorded by both the medical and pharmaceutical profession seems to be a sufficient warrant for its continuance. As previously stated, the aim of these issues has been:

First, to give in brief form items of interest along the lines of the particular branches of the art in which we labor.

Second, to give exact information respecting the products of the Johnson & Johnson Laboratories. In attempting to fulfill these aims care has been taken to avoid the field so ably occupied by the pharmaceutical and medical press, and at the same time to avoid the very objectionable methods pursued by the "house organs."

In pursuance of this policy topics have been discussed and observations recorded which have formed useful contributions to scientific literature. The general favor which has been accorded to these issues is doubtless due to the fact that their contents are timely, readable and of a practical nature.

With the opening of the new series it is hoped that the value and usefulness of these humble contributions will be materially increased. Readers of every kind are invited to favor the publishers with suggestions or criticisms which will tend to the betterment of these pages.

Physicians are invited to correspond with Johnson & Johnson respecting any of their products or upon topics allied to their line of manufacture. Descriptive literature and samples will be furnished on request.

"THE ONLY WAY."

Readers of these Notes have doubtless observed that many of the covers are works of art worthy of more than a passing glance. This is especially true as to the cover of this number. This cover is an original design and in its perfected state represents the work of several artists of high ability. The central figure is an accurate portrait of a nurse who is well known in surgical work in the metropolis. The story told in "The Only Way" needs no amplification. Unclean cotton, unclean dressings are sure harbingers of death. Asepsis, the angel of cleanliness, comes with healing in her hands.

A train of complications will follow a brilliant operation buried under a germ-laden dressing.

A surgically clean wound wrapped in a surgically clean dressing will surely heal.

Cleanliness is the way of life, the only way. "A far, far better way" than ever yet was known.

A Physician's Descriptive List, giving illustrations of packages, sizes, etc., of the products of Johnson & Johnson has recently been issued. A copy will be sent to any physician on request. Copies of this list for distribution among physicians will be sent to any druggist who may apply for the same.

The most complete discussion and greatest amount of information which has ever been issued upon the subject of absorbent cotton is embraced in the issues of Red Cross Notes Nos. 8, 9, 10. Persons who are especially interested in this topic will do well to obtain copies of these issues for reference.

FIRST AID PACKETS.

The following questions have been submitted to the Editor:

When were first aid packets introduced into military surgery?

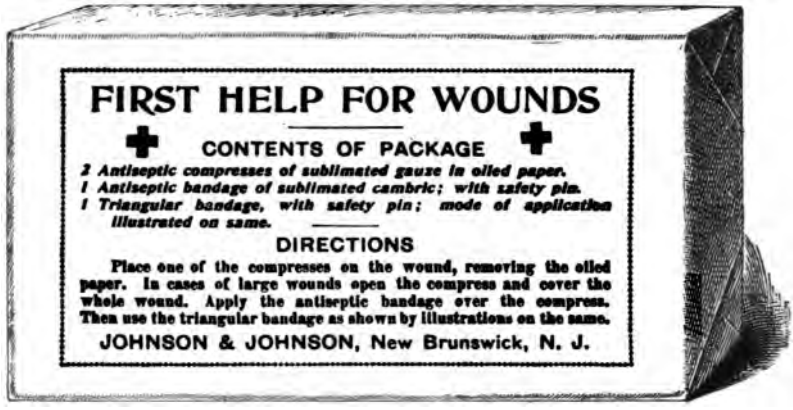
What are the contents of the first aid packets furnished by Johnson & Johnson to the troops in the Spanish-American war?

Are not such packets useful in case of accidents in traveling and for use in factories, etc.?

The earliest attempts at the application first aid to the wounded on the field of battle appears to have occurred during the Russio-Turkish War, and the practice there first suggested has been improved upon, and applied in all the military operations of any magnitude which have taken place since that time, the most extensive use being during the recent Spanish-American conflict.

Von Esmarch, in 1869, invented a triangular bandage with printed illustrations showing the intended method of use, these were to be placed in the hands of combatants before going to battle. He seems to be the real originator of the so-called first aid packets, intended to be carried in the field by every soldier. His packet consisted of a triangular bandage with antiseptic jute and sublimated sawdust pads; he afterward improved upon this by the substitution of sublimate gauze and a cambric bandage. From this has been evolved the first aid dressings as now supplied to the armies of every civilized nation in the world.

The original packets contained only antiseptic dressings in various forms and were more or less crude. At the outbreak of the war with Spain the practice of asepsis had become so general that Johnson & Johnson suggested to the medical department of the United States Army that the first aid packets should not only contain an antiseptic bandage, but that the entire contents should be sterilized and sealed. This suggestion was adopted by the Surgeon-General *and*


FIRST HELP FOR WOUNDS
CONTENTS OF PACKAGE
2 Antiseptic compresses of sublimated gauze in oiled paper.
1 Antiseptic bandage of sublimated cambric; with safety pin.
1 Triangular bandage, with safety pin; mode of application illustrated on same.
DIRECTIONS
Place one of the compresses on the wound, removing the oiled paper. In cases of large wounds open the compress and cover the whole wound. Apply the antiseptic bandage over the compress. Then use the triangular bandage as shown by illustrations on the same.
JOHNSON & JOHNSON, New Brunswick, N. J.

two hundred and seventy thousand first aid packets were sent with the troops into Cuba, Porto Rico and other regions, and are still being forwarded to the army in the Philippines.

The packets as supplied by Johnson & Johnson contain:

2 compresses of corrosive sublimate gauze, 1 yard long and 3½ inches wide, wrapped in oiled paper.

1 corrosive sublimate bandage 2 yards long and 4 inches wide.

1 Esmarch triangular bandage, known as "The First Help for Wounded" bandage, with printed illustration showing the method of applying the bandage.

2 safety pins.

The whole is encased in a waterproof covering, compressed to the smallest possible bulk, sterilized and sealed.

The illustration herewith given shows the appearance of the packet. The directions printed on the packet are as follows:

"Place one of the compresses on the wound, removing the oiled paper. In cases of large wounds open the compress and cover the whole wound. Then use the triangular bandage as shown by the illustrations on the same." These packets weigh two ounces each.

The packets supplied by Johnson & Johnson proved of the greatest value in the Cuban and other campaigns; in fact, it is stated by surgeons who accompanied the troops, that the remarkable results achieved by our surgeons in Cuba were largely due to the employment of these packets, as one of them expressed it, "The results were absolutely astonishing."

Incidentally it may be mentioned that while the hospital supplies and surgical dressings during the war with Spain failed to reach the front, the plentiful supply of first aid packets, one to each man, was made to take their place and became, at times, the source of supply for dressing material; this fact gave a most excellent opportunity to demonstrate their value. The testimony of many surgeons in this respect is quite interesting.

At a meeting of the American Surgical Association, Dr. E. Martin, of Philadelphia, exhibited one of these packets which had been through the campaign and had, upon its return been subjected to a bacteriological test and the entire contents were found to be perfectly sterile.

It was found that these packages could be placed in water and be kept there for hours; be subjected to all sorts of handling, carried in the clothing of the soldier, and yet remain dry and sterile.

It is needless to state that if these packets have such a high value as a dressing for the wounded in battle, they can be made useful on railroads, for bicyclers, in factories, etc., to be used on somewhat similar lines, viz.: as a first dressing; a more permanent dressing to be applied later by a surgeon, should the latter course be deemed necessary.

The value of these dressings consists in the fact that they can be applied by any person without the removal of the clothing, or without handling the wound; that the dressing is just what is needed, viz.: an antiseptic sterilized dressing with a bandage which forms an exclusive dressing, preventing infection and to a high degree promoting rapid healing.

INDEX TO RED CROSS NOTES.

Many of the readers of these Notes have preserved the numbers as issued with a view of binding the same at the end of the series. This number (Series II–No. 12) completes the second series; the next number will begin with Series III.

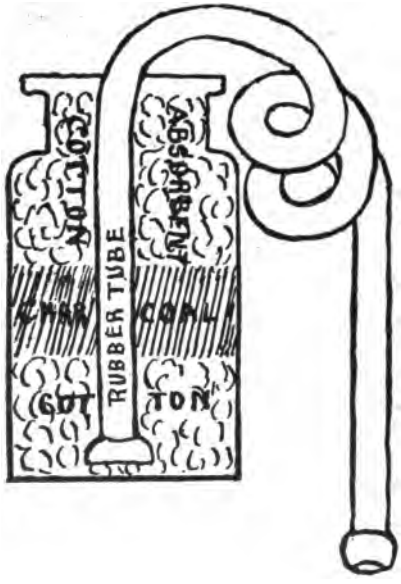
The publishers are compiling an index to the two series already issued and will be pleased to supply any reader with a copy of this index who may desire the same for use in binding. To secure a copy of this index it will be necessary to send a request, by postal card or otherwise, as the edition of the index will be limited to the actual number required to fill the demand.

Physicians who may have occasion to write Johnson & Johnson in respect to their products will do well to mention the name of the dealer from whom they usually obtain their supplies; such a course will be of material assistance to them, in fact, it will enable them to intelligently and promptly supply the wants of the correspondent.

A HANDY FILTER.

A wide-mouthed bottle (a 1-ounce morphine bottle is suitable), a piece of small tubing a foot long, a collar for the end of the tube in the bottle and a mouthpiece for the other end, a package of absorbent cotton, and, if convenient, though not necessary, some charcoal, or fine sand, or even gravel, are the materials necessary for its construction.

The collar, which may be a cork fitting into the end of the tubing, and perforated, with part projecting over the outside diameter of the tube, or a piece of a syringe fitting, or even a piece of pine wood, is dropped to the bottom of container; the cotton is packed not too tightly around the the tube until nearly reaching the neck, where a piece is inserted in a little ball so that it can be removed. The charcoal is a variation, and increases the efficiency, though not absolutely necessary for the successful operation of the filter.



To use it, drop into a glass or pitcher of water, letting the distal end of tube hang at a lower level than the bottom of the bottle. It works best when lying on its side in the water receptacle. Suck the water through the tube until siphon action is established, when the flow will continue until supply is exhausted

If continuous action is inconvenient a spring clip on tube will start and stop flow as desired.

To renew the filter, take out the top pledget of cotton and insert another piece. The extraneous matter will be found on this top piece of cotton; consequently, the major part will need renewing only at infrequent intervals. The writer has personally used this filter while hunting in the North, and while traveling in the tropics, where water is obtained only from rivers and other questionable sources of supply. Commercial travelers have made and carried the filter with entire satisfaction. While not a bacteriological filter, it fills the purpose of cleansing in at least a sanitary degree the water one is often forced to drink in moving from one source of supply to another, especially in tropical countries where one is mindful always of the dangers arising from impure water.

Its portability and inexpensiveness should make it a desirable article for army use, especially in those places where our soldiers have to contend with those ailments coming from inability to quickly and practically filter their drinking water.

PASTEUR AND THE SURGEONS.

Le Limosnin Medical in reproducing a discourse of M. d'Arsonval, the celebrated surgeon, on Pasteur, tells the following curious anecdote about the great French bacteriologist:

"Pasteur was full of the enthusiasm of youth, and never more so than at the period when his labors and discoveries were fiercely combated by the medical fraternity, and, of course, correspondingly depressed at times. Many a time have I seen him return from a session of the Académie de Médecine, altogether 'out' with himself, and for good reason. One evening, after a seance, Claude Bernard returned to the laboratory in company with Pasteur, Henry Ste. Clair Deville, and a surgeon who shall be nameless, save to say that he was one of the most celebrated of Europe at that time. Pasteur was discouraged and in the dumps, and his company saw it, and the conversation, in sympathy with his humor, soon took on a rather funereal turn. Somebody asked, all at once, what would eventually become of the men whose names were then most prominent in Europe, and Ste. Claire Deville said explosively: 'As for you, Pasteur, they will cut on your tombstone, "He hunted the little beast" (*il chercha la pete bete*).' At this sally Claude Bernard looked steadily at the great surgeon, as though he disapproved of his utterance, and said: 'Permit me to correct you. They will write, "He taught surgeons to wash their hands." '—'And pretty much everything else,' instantly replied Deville."

Johnson & Johnson are always grateful for suggestions or criticisms relative to any of the products of their manufacture. Valuable suggestions from many able authorities have in the past materially assisted in the perfection of both the processes and the finished product.

PUNISHMENT FOR SUBSTITUTION.

It is gratifying to note that those druggists who, unfortunately, still persist in practicing the fraud of "substitution," are being punished by the courts. This is an offense for which there is no excuse. While a druggist is unqualifiedly permitted to draw the attention of his customers to his own or some other particular preparation, and may use every legitimate means to dispose of any particular preparation which he believes has merit, the practice of some druggists of urging customers to accept a substitute for an article that has been particularly called for is reprehensible.

But this is not the worst side of the substitution problem. If a physician prescribes a preparation of a certain manufacturer and distinctly specifies it, even though it be a preparation of the pharmacopeia, the druggist who will substitute his own or some other manufacturer's preparation is guilty of a peculiarly insidious and contemptible form of crime.

If the physician wishes the preparation of a particular manufacturer used, he does so, it must be assumed, because he is familiar with its therapeutic value, and knows what results to expect from its administration. If another preparation is used instead, the druggist not only deceives the physician and defrauds the manufacturer, but the act may bring disastrous consequences to the patient. It is not sufficient that the druggist believes his preparation to be equal or superior to the one specified; the physician's judgment, not the druggist's must be relied upon. Now that some of those druggists, and their number, we believe, is comparatively few, who are willing to sacrifice honesty for convenience, or pecuniary gain, have been taught a lesson by the law, it is to be hoped that the practice will find no further lodgment in pharmacies pretending to be honest and respectable.—*West. Drug.*

WHO SHOULD MAKE SURGICAL DRESSINGS.

In the past, dressing materials were largely the product of domestic industry and convict labor. We would not now tolerate supplies from such disease-breeding sources. In recent discussions by surgical authorities, the question has been raised as to the relative fitness of the surgeon, the pharmacist and the manufacturer as makers and purveyors of surgical materials.

The founder of modern surgery manufactured "Lister's Gauze" in his own kitchen. Sir Joseph's kitchen doubtless was a more fitting place for such work than the offices of many of his followers. Doctor's offices are not, as a rule, the most wholesome spots. Their upholstered furniture is in constant contact with the clothing and persons of patients carrying infections of every name and kind. Their tapestried carpets are filled with dust brought from pest-laden households. In the doctor's office we find the tables, shelves, books and apparatus spattered with debris from urine examinations, with pus from foul sores, dried excretions from diseased skin, pathological tissue, clotted blood and dried discharges from innumerable sources.

Streams of infectious matter continually pour into the rooms of the busy doctor and find a lodging-place in the paraphernalia. The unfitness of such surroundings for the production of surgically clean dressings is evident.

I claim for American physicians the highest of honors. I come near to reverencing the skill and genius of American surgeons; but before I would attempt to prepare aseptic dressings in their offices, I should, in most cases, require that they first be cleansed and disinfected upon the lines adopted by health authorities for the purification of infected premises.

A certain hospital claims that its operating room is "the cleanest place in

the world." All hospitals have not earned such a title. Many of them are attached to medical colleges where are gathered students and professors direct from the dispensary clinic, from visits to infected houses, from dissecting rooms, from unnumbered sources of contagion.

Clinging to their persons and clothing may be found particles rich in pyogenic and pathogenic bacteria. In hospitals the aggregation of infectious organisms cannot be avoided. Formerly they were "hot-beds of infection." Even now dangers are excluded only by the most rigorous procedures.

When dressings are prepared by the pharmacist, the work is generally performed in the drug store back room. This place comes far short of the conditions known as surgical cleanliness. The chemically clean graduate is still unclean in the eye of the surgeon. Counters littered with vegetable and animal drugs of all kinds are not suitable places upon which to lay absorbent gauze. Dust from the street and store, spatterings of syrups, extracts, oils and all manner of decoctions create favorable lodging and breeding places for organic life altogether obnoxious in surgical dressings. The pharmacist, though ordinarily clean in person and habits and familiar with soap and water in the pursuit of his calling, is yet far from aseptic. Like the physician, he is constantly in contact with infection through the person of his patrons.

The hands that dispense beef tea at the soda counter, or that bring a jar from a mouldy cellar, should not touch sterilized material without cleansing. Thus there must be a radical change of environment before the pharmacist can attain success in aseptic technique, though he may, perhaps, rightfully claim conditions and facilities that are above the ordinary physician.

The facilities of the manufacturer, whose whole organization is adapted to the production of surgical dressings, are certainly more perfect than the surgeon, to whom such work is incidental. The environment of a room from which pathogenic organisms and septic matters are entirely excluded is superior to any obtainable in the hospital or doctor's office. The room in which no work is undertaken except the handling of aseptic material will certainly be more nearly surgically clean than one to which infection has constant access. Persons whose only calling is that of preparing surgical material, who have been schooled in the principles underlying the infection of dressings, are probably more competent to handle dressings than the doctor's student or his attendants, to whom such work is of necessity relegated. In this line, as in many others properly constructed apparatus is more efficient, more cleanly, more perfect in results, than hand work.

Further, an organization devoted exclusively to the manufacture of dressings, once the details are arranged to prepare a yard of dressing, can produce any number of yards more perfectly than one producing as occasion may require, as is the rule in the hospital or in private practice.

To the manufacturer and dispensing pharmacist is due the credit of having made possible the universal application of the principles of modern surgery. They have supplied to the practitioner in the most remote regions appliances as perfect as those used in the great hospital centers.

I hold that the preparation, selling and dispensing of medical and surgical supplies to the doctor, to the surgeon and to the public belong to pharmacy. Their application is the province of the practitioner of medicine and surgery, and I maintain that it will be to the betterment of surgery to receive all dressing materials from the hands of a competent pharmacist.—F. B. KILMER, in *American Journal of Pharmacy.*

THE MAKING OF ASEPTIC DRESSINGS.

One may best gain an impression of the principles which underlie the preparation of dressings fitted to fulfill the present day requirements of surgery by witnessing the methods carried out in the laboratories of Johnson & Johnson.

The buildings set apart for this work were built for this special purpose—made plain and tight to exclude dirt. They are admirably situated away from busy and dusty streets. For miles on either side are stretches of river and meadowland, securing an almost dustless atmosphere. In fitting up the rooms in which the manipulations take place, the ideas kept in view were the exclusion of bacteria, cleanliness and facility for keeping clean.

The walls and ceilings are glass-smooth. The floors are filled and polished. There are no closets or shelving, no cracks or crevices to harbor dust or dirt. The furniture consists of glass-topped tables with iron frames, allowing effectual and easy cleansing. The principal part of the work is done in aseptic rooms, so called because all things within them are at all times kept surgically clean.

The following is an extract from the rules governing this room:

"Everything outside of this room, everybody and everything passing into this room from the outside are to be regarded as infected until subjected to special cleansing operations.

"Everything required for use in this room, or being brought in, must be sterilized according to the prescribed rules.

"All cleaning, sweeping and dusting must be done at the close of the day's work. Tools, apparatus, towels, aprons, aseptic clothing, etc., are to be sterilized in the sterilizing chambers. The floor must be well moistened before sweeping; dusting must be done with damp cloths. After sweeping and dusting, the covers upon the tables must remain for at least eight hours.

"As often as may be necessary, the entire wood and iron work of the room must be washed with soap and water, then with antiseptic solutions, the room closed and fumigated with sulphur and steam."

Everything, whatsoever may be its nature or history outside of these rooms is considered as infected (though, in fact, it may be free from germ life); it is, therefore, disinfected before being taken into the room. The entrance to the aseptic room is by an ante-room, which is a disinfecting station of the highest type, which, as through a quarantine, all persons and things pass before entering the aseptic room. The persons who operate herein are under charge of graduate surgical nurses.

The following extracts from the rules in force show the methods adopted for securing personal cleanliness:

Every person before entering the aseptic room must put on the prescribed washable garments (flowers, ornaments, jewelry, etc., must be removed). They must thoroughly wash and scrub their hands, forearms and face according to the prescribed rules.

HAND STERILIZATION.

After entering the aseptic room and when ready for handling sterilized material:

1. Scrub the hands with ammonia, rinse without drying.
2. Wash in a solution of soda salt, and dry on sterilized gauze.
3. Cover the hands with about one tablespoonful of bleaching powder (chlorinated lime) and enough water to make a thin paste. Quickly rub through the paste one or more large crystals of carbonate of sodium (washing soda). This is to be rubbed for several minutes over the hands and forearms until a paste is formed, or until the soda crystals impart a cooling sensation and the rough grains of bleaching powder have disappeared. Afterwards rinse the hands in warm water and dry them.

Operatives leaving the room or touching any non-sterilized object must re-wash their hands according to these methods before handling again sterilized material.

Hand washing and sterilization must be repeated whenever those in charge may require it.

The rigid enforcement of these methods is required of all persons in any way connected with the work. No excuse will be allowed for any deviation.

After this preliminary washing, operatives must pass at once into the aseptic room. Persons engaged in directly handling dressings must further put on sterilized over-garments, caps, sleeves, etc., and again wash their hands.

After this washing, only such objects as have been cleansed and sterilized may be handled unless the hands are re-washed. If for any reason there is cause to leave the room, the sterilized garments must be taken off, and then, before re-entering, both the preliminary and final washings must be again performed.

PYELITIS.

In answer to a correspondent, Dr. W. F. Waugh in the *Alkaloidal Clinic* gives the following advice:

Query 1005. The entire amount of urine in twenty-four hours is eighty ounces. The patient is a girl, age 24. Four years ago a swelling appeared over the left kidney, which disappeared in a month. In 1898 the urine was examined and found to contain large amounts of albumen. This has continued ever since, with dropsy. For several months she has had severe pain in the right side of the back of the neck. Digitalis affects her very unpleasantly, bringing on menstruation prematurely.

S. E. M., Cal.

I would diagnose this case as pyelitis. Give her potassium acetate, one oz., benzoic acid, half a dram; chloroform, half a dram; in eight ounces of water, a tablespoonful every four hours so long as albumen is present in the urine, and an exclusive milk diet. If the albumen disappears entirely in one month you will cure her.

The pain in the neck, I believe, is not connected with the other trouble. You may find enlarged glands there. Possibly it may be relieved by galvanism or by the application of belladonna plaster, (J. & J.) or chloroform liniment.

The effect of the digitalis mentioned is a very remarkable one and I should like to know how much is given, and what preparation to produce the effect. If, as is probably the case, her strength is considerably reduced, I would add to the above the use of nuclein, one tablet every two hours while awake. Keep the bowels regular also by saline laxative, and aseptic with intestinal antiseptics.

Messrs. Johnson & Johnson,
New Brunswick, N. J.:

Dear Sirs—Have received your latest Red Cross Notes. Am always pleased to receive them, as they always contain something worth reading. If your Z. O. Plaster bears out all you have to say regarding it, it will be a valuable addition to our armamentarium. Would also like sample and literature of your smell-less iodoform. Respectfully yours,

J. E. G. WADDINGTON, M. D.

OPERATIVE APPENDICITIS IN THE COUNTRY.

Dr. Clarence W. Kellve in the *California Practitioner* says:

"From information and personal observation I would infer that operations for appendicitis are of very rare occurrence in the curriculum of the average country practitioner; whilst my experience in this sparsely settled section has taught me that it is the most frequent emergency condition encountered.

To my mind this discrepancy can be accounted for in but two ways: failure to recognize urgent indications when existing, or dereliction on the part of the country physicians, sacrificing lives through timidity and lack of self-confidence, which might, by active and timely interference, have been saved.

Is it not probable that many cases dying from "bilious" or "typhoid fever," "colic," "inflammation of the bowels," etc., might have stood a chance of recovery had a correct and timely diagnosis of appendicitis been made? Osler says: "Appendicitis is by far the most common inflammatory condition producing symptoms not only in the cœcal region but in the abdomen, generally in persons under thirty. Laparotomy has taught us that, almost without exception, sudden pain in the right iliac fossa with fever, localized tenderness with or without tumor, means appendix disease."

Many cases may have been saved by operation at home, which were sent to some surgical metropolis, either dying on the road or arriving in such condition as to render a successful operation impossible. Every conscientious physician desires that his patient shall have advantage of the very best surgical skill available, hence the only cases with which the country doctor comes in surgical contact are those unable, generally physically, sometimes financially, to attain such privileges. None but the country prac-

titioner, who has "been there," realizes the responsibility of assuming such cases, operating under the most adverse circumstances, as to patient, accommodation, assistants, knowing that if his patient dies he will be subject to severest criticism and censure; at the same time, *it is his duty and he must do it.* When a patient goes to the city and dies after operation, the community is apt to say that "he died in spite of the operation"; if operated upon in the country and surviving, that "he lived in spite of the operation."

He cites thirteen cases from his own practice, and says:

"The moral of this paper is that every country practitioner should be prepared to meet just such emergency cases. Trusting they may prove of practical benefit to some, I shall detail our method of preparation. We try to carry out asepsis as strictly as possible. Now that we have an ideal little surgical hospital in charge of two experienced surgical nurses, this is not so difficult. In private residences our methods are as follows:

The nurses take charge of a small portable Rochester steam sterilizer and instrument boiler, fed by two alcohol vapor lamps. The room selected for operation is cleared, especially of all draperies, and sterilized as far as possible by the use of a formalin lamp. The floor is covered with wet sublimatized sheet. Operators and assistants wear slippers, stockings, trousers, robes and caps, previously sterilized and put up in paper packages. For headgear we use an original device, consisting of a cap with a long bib or cape all around (with a window for the eyes and nose), which is tucked in beneath the neck of gown. We consider the beard one of the most potent factors in sepsis. As washes we use green soap, chloride of lime and soda, permanganate of potash, oxalic acid, turpentine, ether or alcohol and sterilized water. No carbol. sublimate nor formalin used unless exposed to sepsis. Field of operation receives same preparation as hands and arms. Hereafter we shall use gloves in all septic cases. All instruments, sutures and ligatures are employed dry; of the latter we use silk, J. & J.'s red cross dry aseptic catgut and J. & J.'s dry aseptic silk worm gut.

ON DYSPEPSIA.

Of writings on this subject there is no end. It is probable that the wide prevalence of digestive disorders sustains the interest, and contributions from every source command attention. A recent pamphlet along this line entitled "On Dyspepsia," is well worth reading.

The first chapter contains a clinical lecture by a well-known teacher and practitioner, in which he says:

"The physicians of the present day are distinguished by their skill in individualizing their patients and in applying in their practice the excellent advice of Chomel to 'treat the patient and not the disease.' Disease is merely a state in which the human body happens to find itself at one time as opposed to the state in which an average man would find himself at another time.

"Following out Professor Allbutt's method, instead of devoting our time to the study of dyspepsia, we should pay most respectful attention to the dyspeptic.

"It is more profitable, therefore, to keep the dyspeptic and his sufferings in mind in our prescribing, than to fix our attention upon some abstract conception, which we are apt to regard as the disease, for the very important reason that the same pathological condition will in one case scarcely give any annoyance, while in another the patient may be completely disabled by it."

As to treatment he says:

"The chief point to be borne in mind is that these apparently perfectly well-defined types of disease may be present at different times in the same patient.

and may, and frequently do, co-exist at special times. This is important from a therapeutic standpoint, because a patient may derive benefit from a certain treatment at one time and fail at another time, when conditions are different, of which condition, however, he has no means of acquainting himself, and he jumps to the conclusion that the remedy must be at fault. It is obvious, therefore, that it is just in the appropriate adjustment of the remedy to the actual morbid condition that the physician demonstrates his knowledge of therapeutics and shows his skill in his art, and it is only by the careful study of each case that such an understanding may be gained as will lead to a successful result."

A review of one thousand cases, reported by different physicians, of disordered digestion treated by Papoid (a vegetable pepsin obtained from the Carica papaya) combined with soda bicarbonate and a little boric acid, shows that this combination (known as Johnson's Digestive Tablets) is capable of affording relief in a wide range of symptoms from which dyspeptics most frequently suffer.

The pamphlet also contains a very concise article upon the treatment of dyspepsia, by Dr. Robert C. Kremar, of Louisville, Kentucky. A diagnosis blank, embracing a very useful and complete form for recording dyspeptic cases.

A very concise article on Diastase.

This pamphlet is from the press of Johnson & Johnson, who will send a copy to any physician on request.

Detroit, Feb. 5, 1900.

Messrs. Johnson & Johnson
New Brunswick, N. J.:

Gentlemen—We have used the sample of Zinc Oxide Adhesive Plaster which you so kindly sent to us, and I have ordered more of the same. We like it better than anything we have used before, and our surgeons now always ask for it. The Iodoform Johnson has proved satisfactory and more desirable than the original iodoform.

Respectfully,

N. E. HAIGHT,
Supt. Children's Free Hospital.

A DRUGGIST'S WIFE.

HER OPINIONS.

Editor Red Cross Notes.

Dear Sir—My husband (who keeps a very nice store in this town) swears by Johnson & Johnson. Now "I don't mean what you think I mean," as the saucy little boys say! He really does—it is supposed to be a joke. When a customer comes in and asks for corn, or some other kind of plaster, he always says "Buy Johnson's." Do you see the joke? The customer always does, or is made to. But seriously, I think you must make a lot of useful things at those big factories that Red Cross Notes tells so much about, and I only wish I lived near by so I could drop in and see some of the wonderful things you are making all the time. My husband thinks Red Cross Notes is very interesting. He gets as mad as fury if one is lost or torn the least little bit, he saves every one and has got them bound. I read them sometimes when I find anything in them that is interesting; still if I was the wife of whoever edits it, I would use the scissors on some of the things he prints. For instance, he gives a long-winded bombastical account of some doctors, telling how they operated on a man; harrow you up telling about cutting him up, with all the nasty details. This may all be delightful reading to a scientific mind, but to the average layman it palls, especially when you read that the unfortunate victim succumbs 36 hours after the operation—that part of it I should leave out. I should also leave out a lot of that stuff about belladonna plasters. My husband says everybody knows that Johnson's is the best and that settles it. I know something about belladonna plasters; I put a piece under my eyes one night and the pupils got so big and lovely. But didn't my husband scold me, and I had to have a doctor put drops in them and stay in bed in a dark room for two days.

I think if you had a little fun in your paper once in a while it would prove more interesting reading; at least to me it would.

I was in England during the past summer and was struck by the marked contrast between their chemists shops and our drug stores. My husband has a large and majestic Tuft's soda fountain which takes up nearly half the store, while his sale of cigars and candy theatre nights is something astonishing. In England they don't know what soda water is! Poor benighted heathen! And if you want candy you must go to a "sweet shop." I believe my husband went to a tobacconist's for his cigars, but I know he said he did not have a decent one all the time he was away. I must say that the "clarks" (as they call them) are much more civil than ours, in fact, everybody is, in England.

Yours,

M. A. J.

P. S.—Please don't print my name, as my husband might object to my expressing my views so freely, but he values your Red Cross Notes very highly and says he could hardly keep store without them.

A BELLADONNA STORY

BY J. W. SCHWARTZ.

Belladonna plasters and the process of their manufacture ought to be interesting subjects to every man, woman and even child throughout the land. Good plasters are such beneficent agents that few people whose sufferings have been assuaged by them, can refrain from regarding them with gratitude, a feeling naturally extended to their makers. And it is safe to assume that the great majority of Americans have at one time or another had recourse to them. It would be strange if their gratitude were not tinged with curiosity.

I came across a type-written communication upon the subject of belladonna plasters, issued recently by Johnson & Johnson, the well-known chemists of New Brunswick, N. J. This cleverly insinuated the superiority of the belladonna plasters of the manufacturers over those of "ye olden days," made by the apothecary from the plaster mass. The letter contained a superb illustration of the constituents of Johnson's Belladonna Plasters, and also a cordial invitation to visit "our laboratories, and witness a practical demonstration of the care we exercise in the preparation of the goods."

A few days afterward I took advantage of the kind invitation and presented myself to Mr. Frederick B. Kilmer, chief chemist of the company.

That gentleman promptly introduced me to Mr. Robert Wood Johnson, the head of the firm, to whose courtesy I am indebted for all the information I am here enabled to impart.

The student of human nature, favored with the opportunity of studying such a subject as Mr. Johnson, will immediately perceive that here is a "large" man—large physically, mentally, morally; that he is broad and deep, yet naturally so candid and sanguine that he instantly inspires respect and confidence, leading to a belief that this man can well nigh do anything, and that success crowns most of his undertakings.

Mr. Johnson's office surroundings bear testimony to his versatility, for they show him to be an artist of no slight achievement.

But Mr. Johnson's special claims to authority on the subject of plasters are based on an active experience of twenty-six years in the making of them. His first essay was made in 1874, since which time he has been continuously occupied with the subject, in one place or another. The enthusiasm and single-mindedness with which he has devoted himself to plasters has won for him such recognition that his every word carries weight, and he is conceded to be the plaster oracle.

Every advance made in their manufacture is to his credit, and he has repeatedly revolutionized the process.

I plunged into *medias res*, with the query:

"Mr. Johnson, what are the functions of belladonna plasters?"

"They are intended as curative agents. As such they should be of accurate standard strength, as the pharmacopeia indicates. The mass of which they are made should permit the belladonna to exercise its functions upon the system through its tissues. If rightly made, belladonna plasters will promote absorption of that drug."

"The greater the adhesiveness the more the efficiency?"

"Not at all; they should be easy to apply, yet easy to take off."

"What are the components of belladonna plasters?"

In reply Mr. Johnson led me into another room, and pointing out an elaborate display in a large show-case—it has

been photographed and the reproduction used at the head of the circular letter to which I referred—said, "all of them are to be found in there." Then he entered into a learned and exhaustive disquisition regarding the functions of each component, winding up with the remark, "these are all the essentials, and they are all essential."

These components are: Belladonna Root, India Rubber, Boracic Acid, Burgundy Pitch, Yellow Wax, Galbanum, Olibanum and Olive Oil.

"Is much skill required in the combination of the ingredients?"

"Plasters have become commonplace articles of merchandise, and the tendency to think of them being sold by the pound or yard has become ingrained. But the pharmacopeial standard is so rigid that judgment and skill are absolutely essential in the compounding rooms. You have no idea how many problems arise, as in all other branches of scientific pharmacy."

"Do belladonna plasters invariably contain belladonna?"

"True belladonna is the drug that is required by the United States Pharmacopeia, which prescribes that the plasters shall be made from the extract of belladonna, in a manner and of a strength such that the finished product shall contain from 0.2 to 0.3 per cent. of the alkaloids of belladonna. In this respect no deviation is permissible from the fixed letter or spirit of the standard, such as the substitution of false belladonna, scopola, hyoscyamus, nor the use of known or unknown alkaloids which may seem to conform to the pharmacopeia. It seems to my mind that a belladonna plaster should comprise nothing but belladonna with the proper base; else it not be labelled belladonna plaster, for such it is not."

BATCH OF BELLADONNA PLASTERS SHOWI

"Do the gums employed in the making of these plasters have any active medicinal effect?"

"They are not supposed or designed to have. The gummy and resinous mass ordered by the pharmacopeia as a vehicle for belladonna, is deviated from in order to make a more usable and more efficient plaster. For example, India rubber has many qualities which make it one of the most useful gums for a plaster mass. It acts well with most drugs, has just the right adhesiveness at body temperature, is waterproof and fairly stable. But on the other hand, it is a highly complex substance and very treacherous."

"As obtained from the forest, does not India rubber contain many impurities?"

"Oh, yes. It is full of vegetable and animal matters, fats, wax, resins and acids. Then, too, the secretions of the tree vary according to the conditions of growth and vigor."

"Then before you can use the rubber, it must be subjected to severe cleansing processes?"

"Decidedly yes. This is true even of the finest grades Unless all extraneous substances are carefully removed, there will be trouble."

"And do the other gums require much manipulation?"

"They must all be melted and strained to exclude foreign matter. Some carry turpentine and acids, which act on raw rubber and affect the constituents of belladonna. They must be removed by washing in water, by neutralizing the acids, by evaporation of the turpentine products, and even by solution in proper solvents, straining and recovering the latter. These steps, all preliminary to the mixing and spreading process, are factors which determine the medicinal efficiency of the plaster as well as its commercial quality."

CONSTITUENTS AND FINISHED PLASTERS.

During all this time Mr. Johnson was conducting me through a labyrinth of rooms wherein the various processes of plaster making were being performed. A skilled mechanic would have better appreciated all that was shown. It thoroughly impressed, nay, awed me. But to my layman eyes a great part was incomprehensible, so that I can convey only a general impression. It will be difficult to even begin to do justice to the magnificent industrial monument reared on the banks of the Raritan River at New Brunswick. And this is not the only plant of Messrs. Johnson & Johnson.

But the sight of this succession of large factories is an object lesson not to be forgotten. Even with them before you no adequate idea of their immensity can be formed. Their interiors convey a more substantial conception. One must go through them, floor by floor, building by building.

Mr. Johnson pointed out huge piles of crude rubber, great bags of belladonna root, and enormous quantities of other raw materials. It seems absurd to allude to these passingly, when the least are deserving of extended description. I retain misty impressions of a vast muster of machinery and apparatus, baths, hacklers, rollers, grinders, kettles, paddles, calendering machines, punches, facers, clippers and numberless other contrivances, automatic and otherwise.

"Would you mind telling me about your method of plaster-making?"

"No. I believe I was the first to combine India rubber with the pharmacopeial plaster masses; and that this was the great advance in modern plaster-making. The pharmacopeial directions for evaporating the extract of belladonna and for mixing the mass may result in its destruction. My experience has taught me that good belladonna would be cremated if the directions were obeyed, and that consequently it would never become effectively curative."

"Why so?"

"Because the belladonna alkaloids are so easily broken up and destroyed. The conditions of the active ingredients largely determine the efficiency of the plaster. If these ingredients are in soluble form and will readily penetrate the skin, the best results are certain. But a very hard, insoluble, old or imperfect extract of belladonna is useless. It has been the practice of some plaster-spreaders whom I know, in order to get a nice looking plaster and to enhance its permanency, to 'boil down' belladonna extract to a hard, tough mass. Handsome goods may result, but they might as well have omitted the belladonna. Experience has taught me that sustained heat above 100° is injurious; 115° is dangerous, and that above 120° will ruin belladonna extract."

"Have you overcome this difficulty?"

"We have discovered a method by which the whole operation of manipulating and spreading the plaster mass is done at a temperature not exceeding 100°, thereby preserving the activity of the delicate drug."

"Does your method include other advantages?"

"We think so. The conscientious plaster maker carefully considers not only the drug, as in this case of belladonna, but every separate ingredient, every step of each process, the effect of every combination and its ultimate application."

"Do you use any ingredients not actively helpful?"

"No. Everything put into a plaster which is not a medicinal agent, or which does not promote adhesion or absorption is simply debris which will fill the pores of the skin with dirt and obstruct the absorption of the drug."

"What, for instance, is used for these reprehensible purposes?"

"All sorts of powders and fillers are employed to make a thick, hard mass that will 'look and keep.' But their ef-

fect is to retain the belladonna in the plaster and prevent it from reaching the skin. Several equally important factors enter into the making of a perfect belladonna plaster, such as the selection of proper belladonna root, the proper extraction of the root for combination with the plaster mass."

"Has not the Johnson & Johnson method of mixing and spreading plasters become the standard?"

"Well, it has been adopted and published in the United States and other dispensatories."

"To what do you ascribe its superiority and efficiency?"

"To the simple facts that our plasters hold the constituents of belladonna in the readiest condition for absorption. This we consider as the prime pre-requisite. The plaster must be neither too soft nor yet too hard, but possess a uniform degree of solubility. Thus the drug may most readily penetrate the skin and pass into the tissue. It is our practice to mix the extract in the cold, with the gums, olibanum, Burgundy pitch, galbanum and the rest. Their functions are to retain the plaster mass close to the skin. The wax and the oil are used to give proper consistency to the mass. As a promoter of absorption, galbanum is famous, while boric acid serves as a solvent for the drug and as a mild detergent. It also helps in preventing changes in the plaster mass."

"Skilled labor is undoubtedly required to mix and spread the 'plaster mass' on cloth?"

"Yes, this work requires thorough training in addition to quick hands, discernment and judgment. For the operators must keep their eyes on the thermometer, and also determine when the mass has arrived at the proper plasticity. Again as soon as the plasters are spread they are covered from light and air, cut into sizes, wrapped and packed in boxes. The greater the speed, the better the result, both for trade and for therapeutic results."

"From the former view-point, what do you claim for your plasters, Mr. Johnson?"

"In addition to their merits as curative agents, that our plasters look well and are not changed by age or climate. They are also attractively packed, easy to dispense, and give invariable satisfaction both to the druggist and his customers; while they yield the former a handsome profit. I do not believe it is going too far to claim that our belladonna plasters are ideally perfect. Neither the physician, nor the patient, nor the druggist, will be ever disappointed in them."

NEW ISSUES.

Among the recent issues from the Johnson & Johnson Laboratories are the following:

"Papoid in Surgery." Monograph of twenty-four pages, giving methods and formulas for the use of Papoid in surgery, including the revised methods of Dr. Dumesnil for the removal of tattoo marks.

"On Dyspepsia." A clinical lecture on dyspepsia; full of valuable suggestions on diagnosis and treatment of disordered digestion. There is also included a diagnosis blank specially arranged for the recording of history, examination, symptoms, treatment in dyspeptic cases.

"A Statement of Facts." A clear exposition of the discussion of belladonna, scopolia, etc.

"Physician's Descriptive List." An illustrated descriptive list of all the products of Johnson & Johnson, showing methods of preparation, sizes of packages, etc., with approximate prices to physicians.

"Clinical Uses for Lintine." An illustrated leaflet showing the most approved methods of bandaging, etc., with Lintine.

Any of the above will be sent any physician, druggist or student on request.

Full information and samples of such items as can be sampled will be furnished when the desire for the same is expressed.

GOOD AND BAD BELLADONNA PLASTERS.

W. H. Vail, M. D.

All belladonna plasters do not possess therapeutic value, but depend upon the presence of the alcoholic extract of the drug.

In the realms of officinal remedies of the present decade, there is none, in my opinion, so formidably abused or debased by the substitution of dangerous, uncertain ones, as the belladonna plaster, and I feel quite positive that this substitution and consequent deception, is not generally known to physicians, and certainly not to the laity, who often purchase these plasters without a physician's prescription, simply because they have an idea that a belladonna plaster is what they need, never stopping to reason for a moment, that like every thing else, there are good and bad, and if the latter are employed, the usage will prove not only of no potency to the individual in the relief of pain, but will oftentimes produce deleterious issues, because of the inferiority of the constituents, or substitution of some dangerous drug in an unstandardized alkaloidal strength, and I wholly agree with Sir Richard Marley when he said, "Apply a good preparation of belladonna; a poor one is useless." But I would make it still more emphatic and say that a poor one is worse than useless, for injurious effects are oftentimes the sequel, after the employment of inferior belladonna plasters. The true belladonna plaster is the one that contains the alcoholic extract of belladonna, either of the leaves or root, no other member of the solanaceous family being employed, for nothing can thoroughly represent the physiological action of the atropa belladonna, but a well-prepared fluid extract. Upon this fact depends the purity and puissancy of the plaster. This statement forcibly contradicts the fact that an atropine plaster is a belladonna plaster, although it has been stated by eminent authority that this active principle of belladonna represents wholly the therapeutic properties of that drug and that the physiologic activity of belladonna depends upon the presence of this alkaloid, hence, it has been asserted that an atropine plaster is really a belladonna plaster. True, atropine is one of the active principles of belladonna, but a plaster containing this agent is not a genuine article, unless it also has for one of its constituents the alcoholic extract of belladonna, even though the atropine be present in officinal proportions, for atropine does not represent the complete curative potency of belladonna any more than does its other alkaloid, hyoscyamine, and plasters manufactured with these two ingredients are no more the true belladonna plaster than if they were compounded of some drug totally unadapted to meet the indications in the cases in which they are intended, and not only is it true that compounds that are composed of either atropine or hyoscyamine are thrust upon the market, a mass of deceptive concoctions worthless and injurious, but other preparations of a spurious character that contain no belladonna, none of its alkaloids, and certainly no alcoholic extract of belladonna are sent broadcast over the universe to neither cure the ailment, nor offer any beneficial results, but on the other hand to injure the patient in some manner, poisoning the individual, causing defective eyesight, etc., owing to the inferiority of composition, and the substitution of dangerous, unreliable drugs instead of those prescribed by the Pharmacopeia. For instance, there is a close resemblance between atropia and daturia, the alkaloid extract from stramonium, in fact, some authorities regard them as identical, hence, it is no unusual coincidence to find this alkaloid used in place of the belladonna extract; another one is scopolia, a drug neither recognized in the United States nor the British Pharma-

copeia; a drug that contains no atropine, yet it has been and is at the present time employed in the preparation of belladonna plasters. It is a low-priced spurious drug, and works greater ills than benefits, and others that I could mention which are substituted every day for belladonna, and the deception is so subtlely concealed that both purchaser and seller are misled as to their genuineness, and the only way to abort and eschew all untoward sequels which arise from the usage of spurious belladonna plasters, is to specify a thoroughly safe, trustworthy one and one that is a standardized article. Adherence to this act rigidly and incessantly will be the only means of abrogating and ostracizing the opprobrious, spurious belladonna plaster from employment, for as long as there are purchasers, the mills, both good and bad, will continue to grind, and as long as people, both physicians and laity, are willing to be duped, just so long will the artificer ply his art.

This European plant, atropa belladonna, or deadly nightshade, possesses more witchery, perhaps, than any other drug in the pharmacopeia, due, no doubt, to its complexity. Its antiquity as a medicine dates not very far back, for the most ancient writers on this subject have failed to describe it in any manner by which it can be made recognizable. It is quite frequently referred to as a poison, and only occasionally as a medicine, from the beginning of the fifteenth century, however. During the past hundred years, it has been very regularly mentioned, also more or less used, but never very generally was its employment noticeable until its utility in the treatment of the eye and in examinations marked for it a new and prominent field, and from this time on, it has proven itself of great efficacy in the domain of medicine, being generally used by regulars as well as by homeopaths, to whom it has been a panacea from the very foundation of their school. For a number of years it has been experimentally used in the treatment of various diseases, and those that have stood the test fully have been the ones that have been thoroughly elucidated by its physiological actions. The alkaloidal strength of both the leaves and the root is about the same, though the former are more perishable than the latter, and, therefore, more uncertain, but we have no record of the leaves and root being employed in substance, though there is no reason for them not being so employed, but preparations are made from them which furnish to the world remedies both officinal and magistral, each one, if the true drug is used, proving itself of potent therapeutic value, and one of the most valuable of the former remedies is the genuine belladonna plaster, previously mentioned, for I believe that the action of this drug is a great deal stronger in the form of a plaster than when taken internally.

Atropine, the primordial constituent of this rather repulsive and disagreeable smelling perennial herb, was discovered by Mein, in the year 1833, in the root, while synchronously with him, Hesse and Gieger discovered it in the herb. Its intense physiological activity has, very naturally, formed the favorite theme of many physiologists, and its literature is quite rich, racy and interesting. Cattle, horses, sheep and other herbivorous animals can eat the leaves of belladonna in large quantities with impunity; rabbits can eat them for weeks, their very flesh being poisonous to man, without any grave issues to themselves. To kill them, it requires a dose ten times larger than that requisite to kill man, to whom it is obnoxious. It is taken into the system through the stomach, rectum, lungs, vagina and the skin, and if administered subcutaneously, its action is as quick as morphine, producing but slight local irritation. It acts, in one way or another, upon the nervous system as well as upon the muscles them-

selves and secreting organs, and combines two kinds of action, which are antagonistic in their character, for it is an exciter of the nerves, at the same time it is a nerve depressant, acting on both the nerves and their peripheral connections. It is employed extensively in a number of diseases where quiet, rest, soothing action are desired and where there is pressure to be reduced. With so active a principle, it is no wonder that belladonna should occupy the mind and attention of the chemist as well as the physician, for in it they have within their grasp a puissant weapon with which to combat very many of the ills that are the *vade mecum* of two-thirds of humanity, and being the characteristic alkaloid of belladonna, the only genuine, reliable and thoroughly standardized belladonna plasters are the ones in which it is found in officinal proportions.

ST. LOUIS, February 7, 1900.

JOHNSON & JOHNSON,
New Brunswick, N. J.

Gentlemen:—

Your Belladonna Plasters have proven themselves far superior to any other make that I have ever employed, and now I use them exclusively. I have no difficulty in securing them and they are seldom substituted by the druggist. It affords me much pleasure to commend so favorably your Johnson & Johnson Belladonna Plaster to my professional friends.

Sincerely yours,
W. H. VAIL, M. D.

Atlanta, Ga., Jan. 26, 1900.

Johnson & Johnson:—

I wish to ask you if Iodoform Johnson, Odorless, is the exact chemical compound of iodoform?

I use J & J. goods in preference to all others, because they are the best. Use large quantities of absorbent cotton, gauze, Lintine, etc. Now, iodoform, while it is indeed a skunk in odor, is a "balm of Gilead" in its healing qualities I have dropped it time and again, and tried "something just as good" only to be driven back to it by an indolent chancroid, or a suppurating bubo, that defied everything else. As you know, iodoform when applied to human tissue decomposes and iodine is liberated, in this its action lies. Does Iodoform Johnson, Odorless contain iodine and is it decomposed by juices and heat of body?

Please send me literature on the product, as I am anxious for a remedy "just as good," or better; still the same thing without its odor.

Respectfully,
W. H. WHITEHEAD, M. D.

The similarity and difference between Iodoform U. S. P. and Iodoform Johnson is shown in the following:

IODOFORM U. S. P.	IODOFORM (JOHNSON) ODORLESS.
Theoretical percentage iodine..96.68	Theoretical percentage iodine..96.68
Actual percentage iodine, chemically pure sample.....95.88	Actual percentage iodine (4 samples—Sadlier)..95.20
Market sample A..94.84	
Small, lemon-yellow crystals of the hexagonal system.	Small, yellow, needle shaped crystals.
Penetrating, disagreeable odor.	No odor
Nauseous taste.	No taste.
Sensitive to light.	Sensitive to light.
Very slightly soluble in water.	Very slightly soluble in water.
Soluble in 52 parts alcohol at 52 deg. F.; in 52 parts boiling alcohol; in 5.2 parts of ether.	Very soluble in warm alcohol.
Very soluble in chloroform, carbon bisulphide, benzole and volatile oils.	Very soluble in chloroform, benzine, acetone, ether, benzole, carbon bisulphide, glacial acetic acid.
Volatile at ordinary temperature, in boiling water distils over with its vapor.	Not volatile at ordinary temperature.
Melts at 115 deg. C. (239 deg. F.)	Melts at 188 deg. C. (370 deg. F.)
At a higher temperature emits vapors of iodine, leaving behind a carbonaceous mass.	At a higher temperature emits vapors of iodine, leaving behind a carbonaceous mass.
Is not affected by sulphuric, hydrochloric or nitric acids in the cold; but is decomposed by hot sulphuric or nitric acids.	It is not affected by sulphuric or nitric acids in the cold; but it is decomposed by hot sulphuric or nitric acid.
Is unaffected by aqueous solutions of the alkalies.	It is unaffected by aqueous solutions of the alkalies.
Is decomposed by a solution of potassium hydrate in alcohol super-saturated with nitric acid.	Is decomposed by a solution of potassium hydrate in alcohol super-saturated with nitric acid.

The action and uses of Iodoform Johnson are identical with those of iodoform U. S. P. It gives the identical physiological, antiseptic, therapeutic results; it is to be used by the same methods and in the same dosage. It may be prepared for application the same as ordinary iodoform in solution, powder, ointment, paste, pills, suppositories, etc. It possesses the added advantage of more pronounced cicatrization, less tendency to produce irritation and toxic symptoms, but above

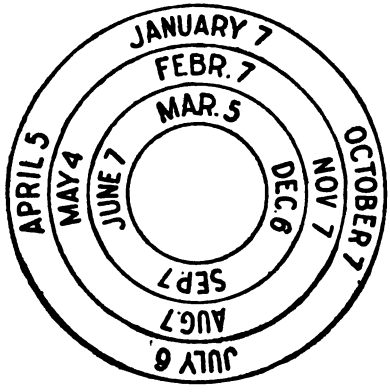
all being inodorous, does not produce disturbance of the stomach, nerves nor possess any of the highly objectionable features which follow the ordinary use of this drug. This product should not be confused with many substitutes for iodoform now on the market, but must be considered as identical with iodoform, except for odor.

AN OBSTETRIC TRICYCLIC CALENDAR.

BY WM. L. KANTOR, M. D.,

of New York City.

The calendar submitted here has the advantage of being compact, simple and portable. It may be copied on the reverse of an ordinary card and carried in the vest pocket.



It should be used as follows: The date of the last menstruation being given, add the numeral on the right hand of the month in which it occurred to the corresponding date of the month immediately following on the same circle, and you obtain the exact day on which labor should take place. *E. g.*, last menstruation December 17; labor September 17 + 6 = September 23—*Phila. Med. Journal.*

Where the products of Johnson & Johnson cannot be obtained from the local dealer or jobber, this firm will esteem it a favor to be informed of the fact.

ASEPSIS IN THE SPANISH WAR.

Dr. Hamilton P. Jones, of the Tulane University, New Orleans, was a surgeon with the army of occupation in war with Spain. He has written some very interesting "Notes on Medical and Surgical Experiences in Cuba." Concerning asepsis, he says:

"Our asepsis seems to have been as good if not better than that obtained in the best hospitals in the United States. The soldiers suffered needlessly from the promiscuous cutting and tearing of their clothes. There were no others to replace them. The care of the wounded, who were compelled by circumstances to be placed on the ground, most of them exposed to the sun and rain, was a great source of anxiety, and the work of redressing wounds and resetting fractures, catheterizing distended bladders and the general treatment of the cases was enormous. Owing to the nature of their wounds many of the men had to be given water and food through the stomach tube. The sterilized dressings furnished by the manufacturers were aseptic."

Concerning the dressings supplied to our army by Johnson & Johnson, Doctor Jones has written the following:

Messrs. Johnson & Johnson.

Gentlemen:

While serving in Cuba with the 1st Division Hospital, U. S. A. as acting Ass't Surgeon, I used many of your preparations with the most gratifying and satisfactory results, having more especially in mind your Red Cross Ligatures, in the treatment and dressing of wounds received by our soldiers in Santiago and vicinity. Our splendid results I consider to be largely due to the aseptic dressings and materials furnished in available forms by the manufacturers.

Very respectfully,

HAMILTON P. JONES, M. D.

Medical Bldg., N. O., La.

HOW TO KEEP PLASTERS.

H. C. KNILL, PORT HURON, MICH.

Plasters should be kept at an ordinary temperature in a dry place, never keep them in the cellar or any place where they are apt to gather moisture, but exclude them from the air as much as possible in tin, wood, or very heavy cardboard boxes. The only way I know of displaying spread plasters is in a show case, and then always in their original package; never put them in your window as they are affected by the heat and would be spoiled by the sun. Never dispense or sell any but the very best made, and those you know are up to strength and properly medicated; there is no money in buying cheap plasters, as they will spoil on your hands and will not not give satisfaction to your customers; and then again when you get a prescription from a doctor, you should know that the plaster dispensed is up to the standard of the United States Pharmacopeia, as the M. D. always expects to get the physiological effect of the plaster.

When selling plasters always tell your customers to wash and dry the parts thoroughly, where the plaster is to be applied and if they will take equal parts of ether and alcohol, and apply to the parts by rubbing with the hands before applying the plaster, they will find it a great benefit, as it will open up the pores of the skin and allow the medication of the plaster to take immediate effect.

So far as spread plasters are concerned, the term dispensing has lost its earlier meaning, since the pharmacist of to-day is not called upon to prepare them, but dispenses spread plasters by handing them to his customers in good form and with proper directions for their use. This is true because of the modern machinery in use by the manufacturer which makes them better, cheaper, and more convenient for general use. The present custom is of advantage to all concerned since time and trouble are saved for the pharmacist, and the customer is guarranteed an article possessing full strength as demanded by the United States Pharmacopeia, if the pharmacist is careful to buy from a reputable firm.

GLUTOL

Is a combination of gelatin and formaldehyd. It appears as a gray, odorless, and tasteless powder. When brought in contact with living tissue it liberates formaldehyd, and so acts as an antiseptic. Henry (*Thèse de Lyon*, 1899; *British Medical Journal*, December 9, 1899) finds that the formaldehyd is set free only in the presence of tissues which are still vital, and not by contact with dead tissue. On this account glutol would seem to be of use in wounds, ulcers, etc., when there is little tendency to cicatrization from any cause whatever; thus, chronic varicose conditions, diabetic sores, trophic lesions, are cases in which it is indicated. It is also useful in venereal sores, syphilitic or otherwise, the chronic suppurative foci of tubercle and deep burns. In short, in those cases in which iodoform has up to the present proved of greatest service, glutol may be employed, and the advantages which it presents are the continued liberation of an antiseptic principle which is much greater than that of iodoform. The absence of toxic or irritant properties, and of odor, are further important points in its favor.

GUTTA-PERCHA SHEETS FOR SPLINTS.

The use of gutta-percha for splints does not seem to be sufficiently appreciated. This material can be readily cut while dry to any required shape, and by simply soaking in boiling water can be moulded to any part of the body. If desired, the inner surface can be coated with a solvent so as to make it adhere to the skin, but this makes its subsequent removal difficult, besides having other objections.—SAMUEL F. BROTHERS—*Philadelphia Medical Journal.*

THE DISINFECTION OF DRESSINGS.

Whatever the term disinfection has been made to mean elsewhere, when applied to surgical dressings it can only mean one thing—destruction of all micro-organisms in or upon the material. This process presents many varying problems. Bacteria show widely varying powers of resistance. Agents which destroy mature or growing forms will not affect the vitality of their spores. The conditions of life and environment are all factors which must be taken into account in the disinfection of dressings. Thus, utensils and objects with smooth surfaces are readily disinfected, because any bacteria present will be found upon their outer surface; but oftentimes these organisms are enclosed within a rock-like mass of dried dust particles; or are protected by a varnish-like coating of hardened animal tissues and secretions—sputa, sweat pus, etc., or, again, are snugly ensconsed within the cellulose structure of cotton and wool fibers. Therefore, in the disinfection of cotton, wool, silk, sponge and cutgut, we find presented a problem varying with each material. Chemical reaction is also a factor in disinfection that has been long overlooked. In the disinfection of dressings the nature of the materials and their behavior toward the disinfecting agent must be taken into account. Thus cotton may be disinfected in a solution of soda, but wool thus treated would be destroyed.

Wool may disinfected in an acid solution, which, in turn, would destroy cotton. Catgut is affected by most chemicals; it is destroyed by moisture. Sponge tissue is affected by many chemicals; it is destroyed by moist heat. Oily substances are impenetrable by watery solutions.

The sole universal disinfectant is fire. It destroys the infection and the infected material. It is applicable to the disinfection of asbestos dressings, which have recently been recommended for surgical purposes. There is no one method or agent which, under all circumstances, will meet all conditions. Generally more than one agent and several methods of procedure must be used together or in succession.

In our laboratories a long series of investigations have been made, having in view the possibility of disinfecting dressings with agents that would have no reaction with the material composing the dressing; that could be readily removed from the dressing; or, when allowed to remain within the dressing material, would have no effect upon wound tissue. In these experiments, such agents as electricity, gases, vapors, friction and pressure have been employed.

The general method of experiment has been to infect fibers with a nutrient fluid containing bacteria, and to subject such fibers to the action of the disinfecting agent. The results may be briefly summarized thus:

Electricity was not effective upon the organism, except when electrolysis took place, as was the case when water or a solution of salts was the medium used in the transmission of electrical energy.

Oxygen gas when under pressure has a germicidal effect, especially upon the bacteria in a moist state. Nascent oxygen was found to be a powerful germicide. Ozone gave results similar to those of oxygen. Carbon dioxide was found to be an inhibitant, but not a germicide. The gaseous oxides of nitrogen, except N_2O were found to have powerful action upon bacteria, but to be likewise destructive to dressing material and productive of great irritation upon inhalation. Sulphur dioxide was found to be germicidal in the presence of moisture; but it is inapplicable to many of the materials used in surgical dressings. Chlorine gas is a disinfectant especially in the reactions taking place in the bleaching process, namely by its union with hydrogen, and the consequent liberation of oxygen.

The bleaching process therefore, effectually destroys germ life. Iodine and bromine are energetic agents in the absence of moisture, but they react destructively with materials used in surgical dressings. Formaldehyde vapors, which possess high germicide power, are highly irritating and destructive to flesh tissue. Formaldehyde is, however, applicable in the disinfection of some classes of material used in dressings, and is utilized in the Johnson & Johnson Laboratories for this purpose.

During the mechanical process of carding cotton and other fibers, the fibers are subjected to prolonged friction, with consequent heat and electrical action. The results of the process upon infected fiber were interesting, and were found to effect a degree of sterilization.

Many hundreds of experiments were made to ascertain the value of pressure as a sterilizing agent upon dressing materials. The results show that under certain conditions infected fibers may be sterilized by a pressure of 50 to 100 tons to the square inch.

With the discovery of a new species of bacteria there is said to be a new chemical born for its destruction.

But in the present-day practice of surgery, only in a few instances may chemical germicides be used for the disinfection of dressings and allowed to remain in the finished product. The active chemical disinfectants are for the most part destructive to dressing fabrics as well as irritating to flesh tissue. Of the many disinfectants lauded in days past for the impregnation of surgical dressings, but few are retained. It has been found that dressings, even when impregnated with antiseptics may still harbor germ life. In the presence of dry iodoform, dry corrosive sublimate, boric acid, germs will retain their vitality for a great length of time.

Though seemingly a contradiction of terms, it is nevertheless a fact of experience, that antiseptic dressings may be the means of conveying infection to a wound. Hence the requirement that antiseptic dressings shall be free from micro-organisms.

In the list of agents applicable to the disinfection of dressing materials, heat ranks first in germ-destroying power. Heated air is precluded from the treatment of cotton and some of the other substances used, for the reason that the temperature required for efficiency is destructive to the material. Heated air is quite inferior in disinfecting power to boiling water and steam. Boiling water almost instantly destoys most forms of germ-life; resistant forms succumb to its action in a few minutes.

Steam, then, holds the first place as a practical agent for the disinfection of surgical dressings. To be effective, it must be saturated (unmixed with air). Saturated or streaming steam circulating under moderate pressure reaches the highest efficiency and gives results equal to those attained by boiling.

DIASTASE.

Malt and its preparations contain a variable proportion of diastase, some being much richer in this important constituent than others. Some of these preparations are syrupy, others are weakly alcoholic and resemble beer or porter. Of late years both forms have been largely employed in medicine, their popularity proving the necessity existing in the community for remedies which assist starch digestion. For many reasons: convenience of administration, accuracy of dosage, freedom from other substances, etc., it was for years a desideratum to obtain the active principle of malt in a pure form, which was diligently but vainly sought after. However, in the advance of manufacturing pharmacy, means finally have been devised for separating diastase in its purest and most active form as a white tasteless solid, well adapted for therapeutic use.

Such a preparation has been put upon the market under the name of

Johnson's Diastase. This diastase acts with great energy and promptness, and it is placed before the profession with the utmost confidence that it will meet all expectations and prove a reliable agency to compensate for an insufficient salivary digestion.

This diastase will be found acceptable to the most delicate stomach and much more efficient and agreeable than the thick sweet extracts of malt.

Diastase Johnson can be mixed with the food, such as oatmeal, pudding, etc., for children, invalids and others who evince difficulty in digestion and the assimilation of starchy food. While equaling in digesting power numerous preparations sold for a similar purpose, it is offered at a price within reach of ordinary practitioners and their patients. The usual dose of Diastase Johnson is from one to five grains. It is usually given at meal times, either immediately before or with the food. When the intestinal digestion of starch is at fault it may be given an hour or so after eating.

A sample of Diastase Johnson will be sent to any physician who will send Johnson & Johnson a written request for the same upon a printed letter head.

RED CROSS COTTON THE TYPE.

Dr. Baxter lectured Tuesday evening before the Miramichi Natural History Association on the Cotton Plant—its value and economies. A very interesting description was given of the natural history of the plant and of its varieties, followed by an account of its earliest uses among mankind. Its various products natural and manufactured were treated of, especial stress being laid upon its extensive application in the science of surgery. Samples of all were shown and uses explained, comprising all kinds of aseptic surgical dressings from Johnson & Johnson, New Brunswick, New Jersey. —*The World, Nova Scotia.*

RELATIVE VALUE OF ANTISEPSIS AND IMPROVED TECHNIQUE IN OPERATIVE GYNÆCOLOGY.

Bumm, after reviewing briefly the work done in bacteriological research during the last year, arrives at the following conclusions:

(1) We possess up to the present time no means by which all micro-organisms may be removed from our hands. A prolonged use of soap and hot water, alcohol, lysol, or sublimate (even though the action of the above named antiseptics be of ten minutes duration) does not render possible an absolutely certain sterilization of the skin. The same applies to sterilization of the field of operation, as, for example, the skin of the abdomen, the external genital organs, the perineum and vagina.

(2) The micro-organisms which we in the course of operation find on the instruments, ligatures, and the wound itself, come chiefly in the deeper layers of the epidermis and gland ducts. Examinations made at intervals during the course of 50 major operations showed in no one case an absolute freedom from micro-organisms.

(3) In aseptic operations, even though performed under the most favorable conditions, and carried out under the most painstaking precautionary regulations, the number of micro-organisms present is far greater than in antiseptic operations.

(4) The micro-organisms which are present in the dust and air play an important role in the production of infection of the operation wound.

(5) It is very difficult to perform an absolutely sterile operation; and it is more difficult to keep the wound and its surroundings sterile for any length of time after the operation.

Notwithstanding the presence of micro-organisms, the healing of wounds may go on without fever or suppuration, and this can only be explained on the ground of the bactericidal power of the organism

namely the blood lymph and vital power of the cells themselves. This does not, however, always suffice, especially in case of great virulence of the micro-organism.

In order to avoid infection, Bumm then lays down the following rules:

(1) The operation shall be performed quickly and with precision, in order that the exposure to the external world may be of the shortest possible duration, and that all unnecessary manipulation may be avoided. The number of micro-organisms which gain access to the wound will, under such circumstances, be much less than in case of prolonged operation.

(2) For the aseptic healing of wounds complete haemostasis is of the greatest importance. The dryer the wound the greater will be the chances for primary union. In case of abdominal operation, a thorough haemostasis is no less important than a thorough antisepsis.

GASTRIC PAIN.

Van Valzah and Nisbet recommend the following tablet as an excellent gastric analgesic, to which codein may be added when the pain is spasmodic or very severe:

℞.—Alcoholic extract of belladonna
Extract of cannabis indica ..of each 1-10 grain.
Extract of coca.....3 grains.

TO PREVENT ETHER NAUSEA.

Dr. Samuel Edwards, of Baltimore, reports four years' experience with vinegar as a preventive of the nausea which follows the administration of an anesthetic. It is said to prevent both the nausea and vomiting, and also the intense thirst which commonly follow. He reports that in four years' use success has followed the employment of this method in 97 per cent. of the cases. No suggestion was given as to the method of operation of the remedy, but so definitely observed an empiric fact is well worthy of further trial by others. Certainly if the remedy is successful in anything like the proportion of cases that is reported, it will prove of the very greatest of value to the operating surgeon, as the nausea following the use of the anesthetic is very often one of the serious complications of the first days after an abdominal operation.—*Cleveland Journal of Medicine.*

Lancaster, Pa., Feb. 6, 1900.

Messrs. Johnson & Johnson,
New Brunswick, N. J.:

Dear Sirs—I received to-day Red Cross Notes devoted to a study in cotton. I use your cotton because I believe it the best, and was very much interested in what I read of its preparation for our use. If you have any Red Cross Notes devoted to the preparation of your adhesive and porous plasters, etc., I would be pleased to receive same as I believe it would be very instructive reading.

I have always used your adhesive plaster because it "sticks." I used another make a few days ago on a hospital case and if it ever had any adhesiveness, it must have been when it was hot. I believe it is best to know why "good things are good" and when I read your cotton article I thought I would write for plaster knowledge.

Yours respectfully,
H. R. BOWERS, M. D.

TO THE MEDICAL PROFESSION:

After summing up the very extended reports and criticisms made by the medical profession during the last ten years as to Papoid and its preparations, our faith in its value as a therapeutic agent is to-day stronger than at any other time in its history. Our belief is that in Papoid and its preparations we have a digestive agent with a greater range of action and value as a curative in certain disorders of digestion than resides in any other known substance. This bold claim is based upon the overwhelming testimony of the medical profession, who have established the value of Papoid, and who are, or ought to be, the sole judges of the value of any remedial agent.

We shall be glad to send the latest literature upon Papoid with a sample for trial to any physician who may request the same.

JOHNSON & JOHNSON,
New Brunswick, N. J.